Vol. XXV DECEMBER 1931 No. 12

# The EXCAVATING ENGINEER

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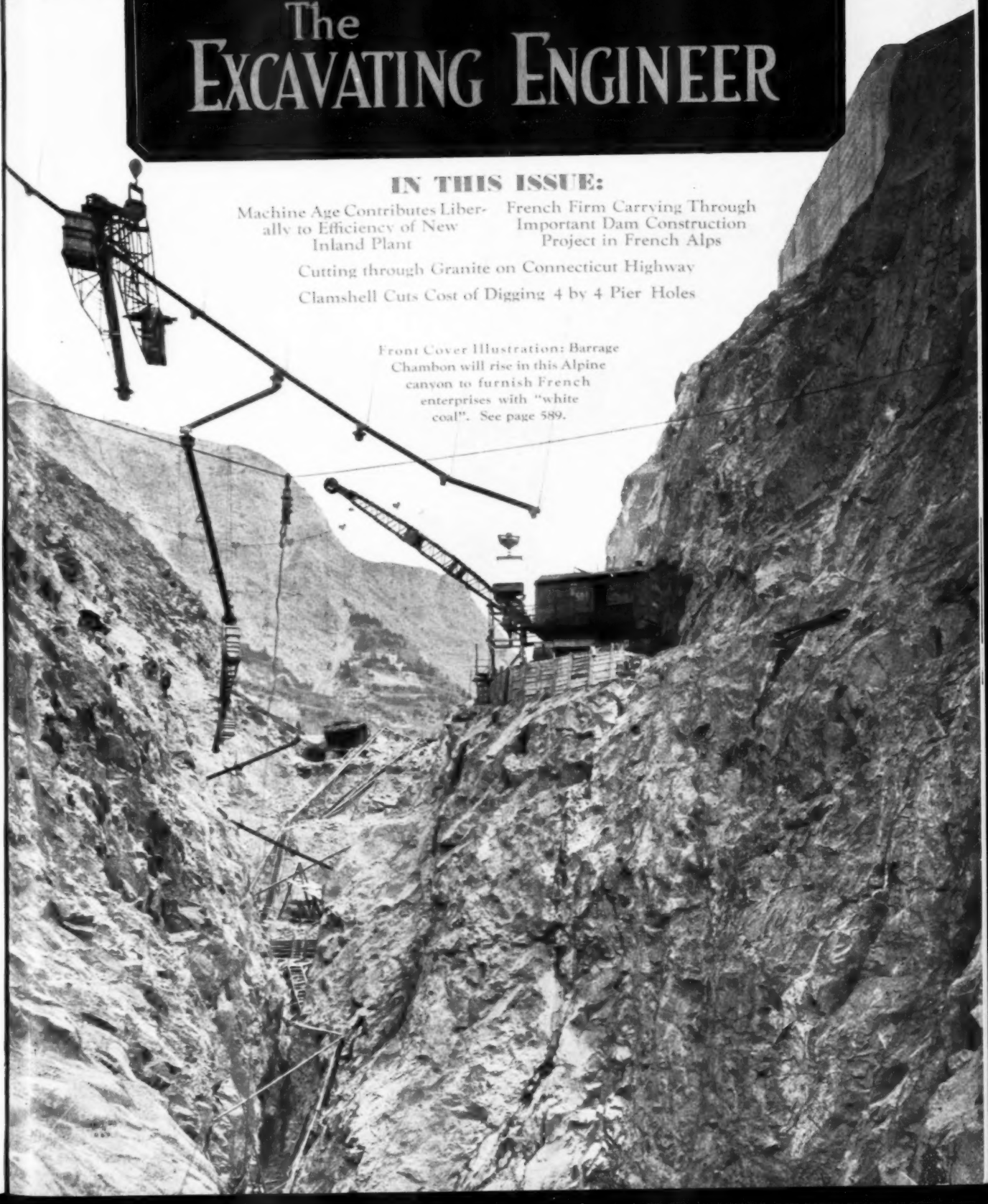
Machine Age Contributes Liberally to Efficiency of New Inland Plant

French Firm Carrying Through Important Dam Construction Project in French Alps

Cutting through Granite on Connecticut Highway

Clamshell Cuts Cost of Digging 4 by 4 Pier Holes

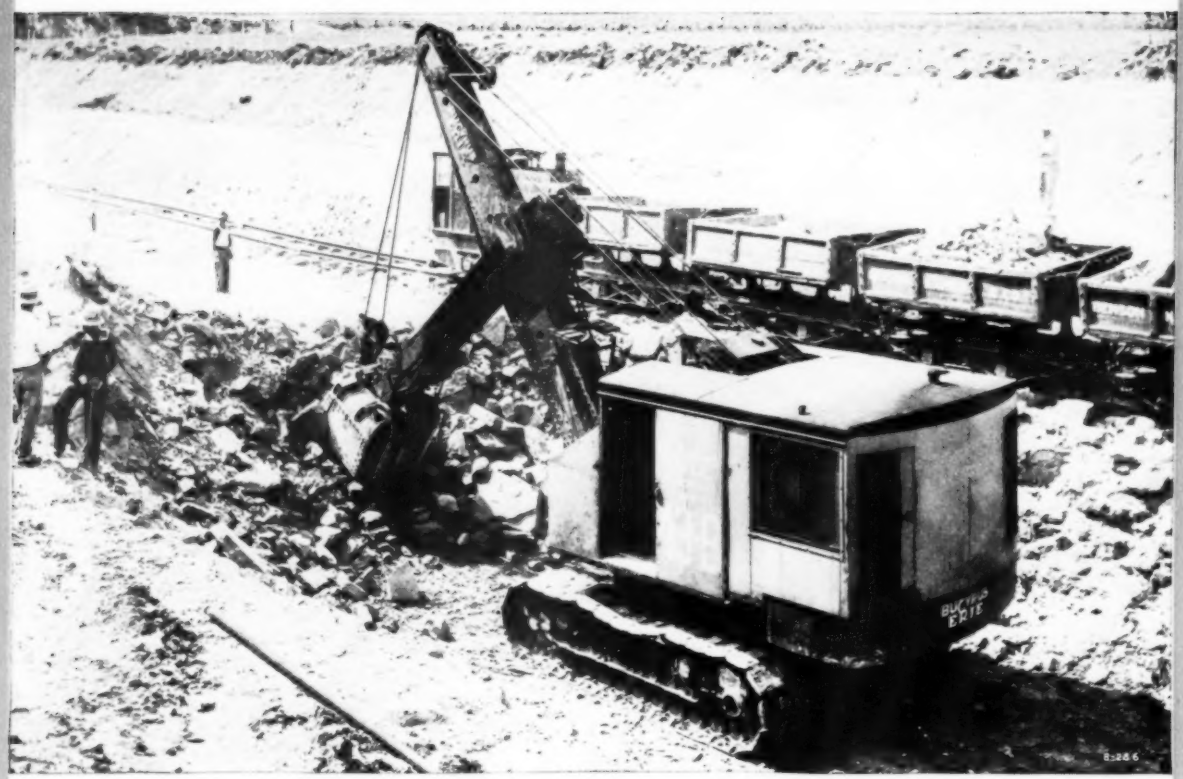


Front Cover Illustration: Barrage Chambon will rise in this Alpine canyon to furnish French enterprises with "white coal". See page 589.

1/2-yard
5/8
3/4
7/8
1
1-1/4
1-1/2
1-3/4
2
2-1/4
2-1/2
3
3-1/2
4
4-1/2
5 and up to 16 yards

Shovels
Drag-lines
Clam-shells
Lifting Cranes
Drag-shovels
Magnet Cranes
Tunnel Shovels
Dredges
Drag-line Buckets

Gaso-line
Diesel
Gas + Air
Electric
Steam
Diesel-Electric

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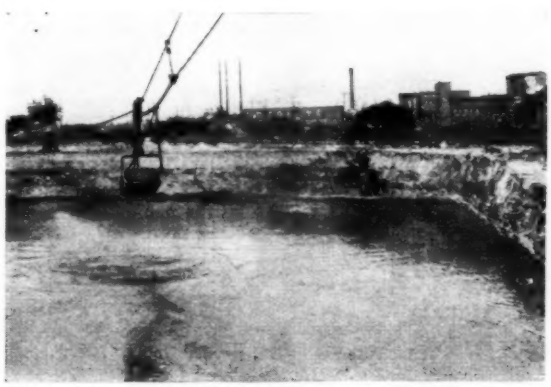

*The*

# Excavating Engineer

*About Excavating Projects — By Excavating Men — For Excavating Men — The World Over*

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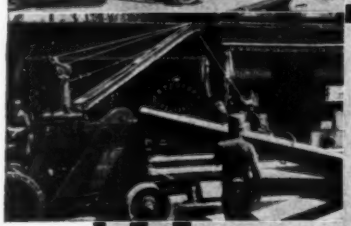

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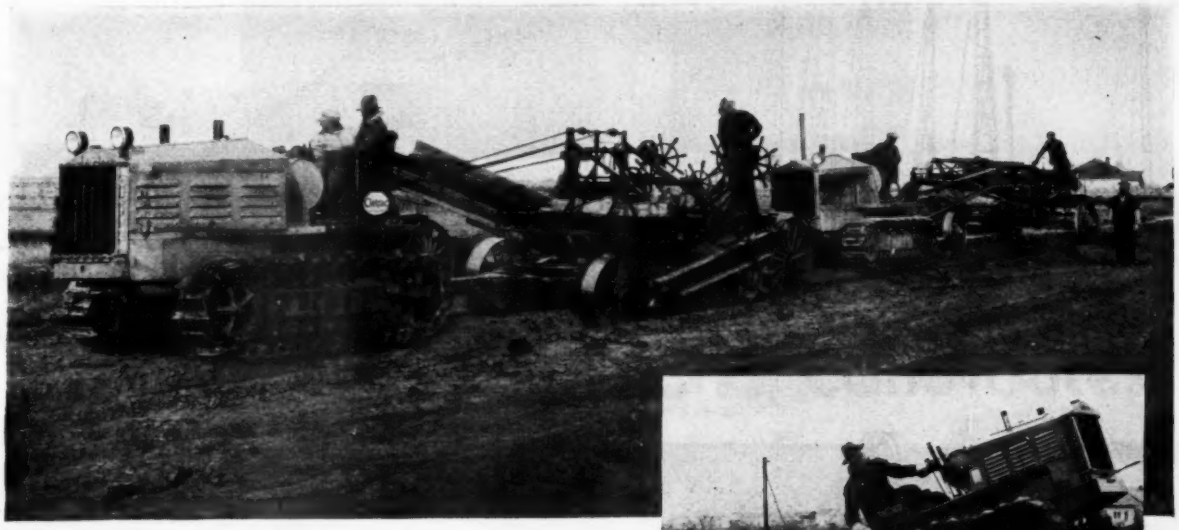

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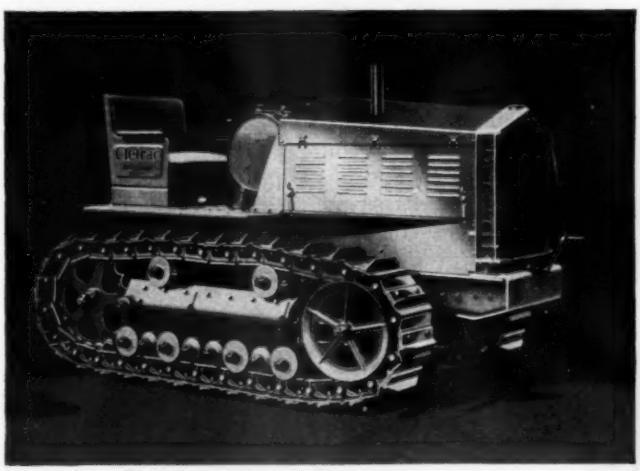

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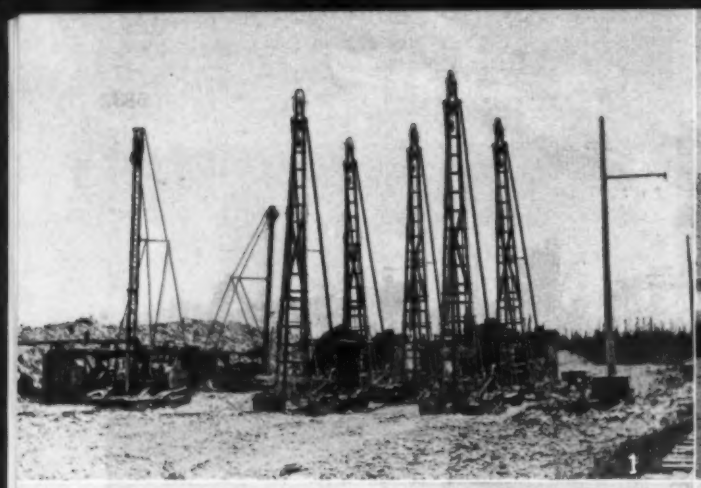

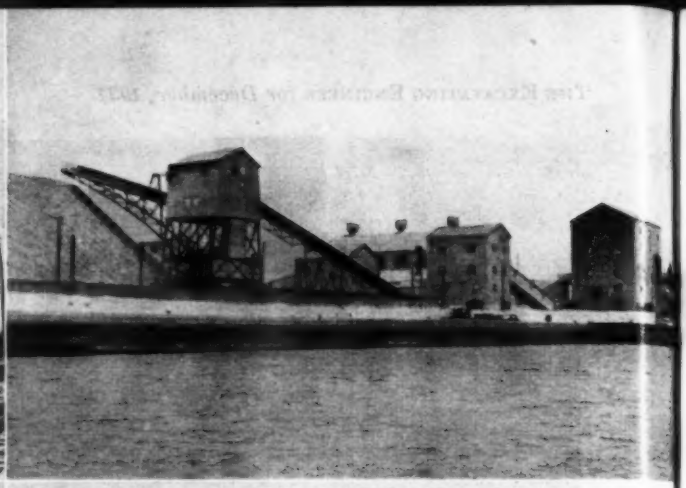

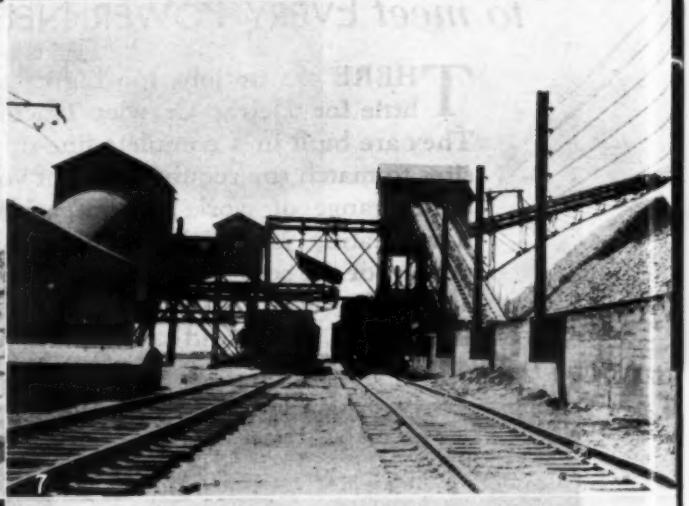

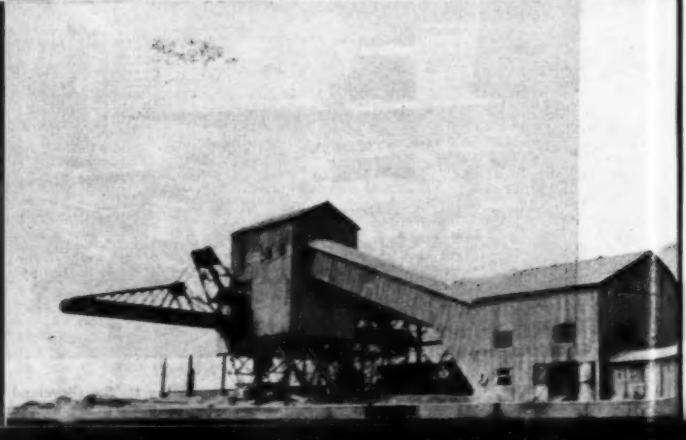

The EXCAVATING ENGINEER

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# MACHINE AGE contributes liberally to efficiency of new INLAND PLANT

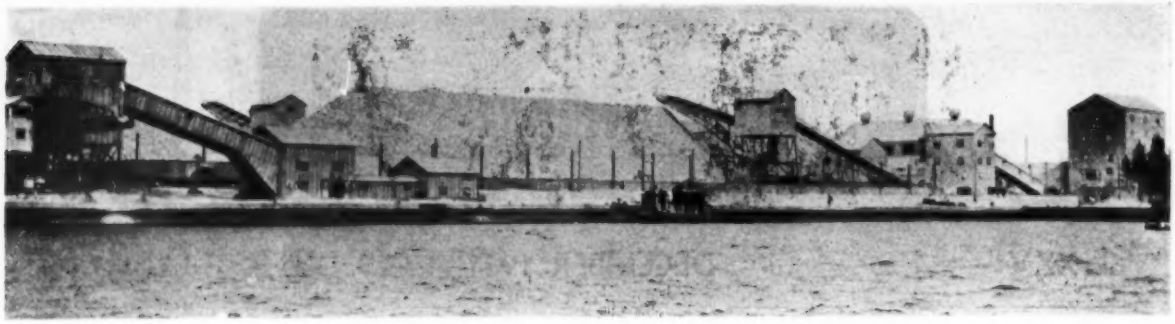
**New quarry of Inland Lime & Stone Company near Manistique, Michigan, completes first year of operation... has face mile-long worked by two five yard shovels .... plant capacity two million tons annually .... all electric installation .... success of many new developments in equipment demonstrated.**

*Loading the locomotive with live ballast which increases the traction on the haul to the plant.*

ON THE SOUTH SHORE of the northern Peninsula of Michigan the new plant of the Inland Lime and Stone Company at Port Inland (22 miles east of Manistique) is in a position to take advantage of the low cargo rates on the Great Lakes. To its advantage was also a start from scratch in planning and equipping the plant and quarry. With no handicap in existing layout or equipment and with ample financial resources, Inland Lime and Stone was able to build for quality of product and efficiency of operation in a way that many a quarry owner hesitates to more than dream about. One has only to spend a few hours in watching and analyzing the operations at Inland, however, to realize that taking full advantage of the developments of our machine age has been a policy of true economy rather than a luxury.

The quarry is located seven miles inland from the plant at Port Inland in a large deposit of high calcium limestone admirably suited for fluxing stone and also for use as road surfacing material or concrete aggregate. The available deposit, covering an area of about 9000 acres, is practically flat, and averages about 60 feet in thickness with a light overburden ranging from about two feet to nothing. The limestone, geologically known as Fiborn limestone of the Niagaran series, is called

*FRONTISPIECE: 1. Battery of drills. 2. Loading from 30-foot face. 3. Pulling out of the quarry. 4. Looking down from the bar grizzly. 5. Plant and one of the stackers. 6. Stacker and entrances to reclaiming tunnels. 7. Car loading arrangement. 8. Boats are loaded here.*



*Looking at the plant from the breakwater across the end of the harbor.*

Blaney Stone, is grey to buff in color, highly crystalline, and weighs 168 lbs. per cubic foot of solid.

### Stone combines purity and hardness

The character of the limestone quarried by the Company is unusual in that it combines chemical purity with physical hardness. This makes available to the merchandising program of the Company not only those sales outlets of a metallurgical or a chemical nature where the desired quality is high calcium content with a minimum of impurity, but also the familiar markets for crushed stone such as road material, concrete aggregate and cement. Early in the current season the stone was accepted for road making purposes by the Highway Department of the State of Michigan, and a substantial mileage of concrete highway was constructed from it. The fact that in crushing it breaks with sharp edges and angular faces adds to its suitability for this purpose. Primarily, of course, the company's plant was constructed to serve the steel industry for blast furnace and open hearth use, but the fact that the sizes below those employed in the steel industry find ready outlet for foundry use, aggregate, etc., serves to make it possible for the Company to maintain a well balanced schedule of production without excessive inventories in any size.

In addition to its high calcium limestone quarry, the Company has in another convenient location a dolomite deposit which may be placed in production in the not distant future. This quarry from which the stone for the Company's breakwater was produced would serve the growing market for large blocks of rock for marine purposes as well as the metallurgical and chemical markets which desire a stone running high in magnesium but low in silica and other impurities.

*You can see that there's no fooling about the tough digging in this bank. But the shovel is big enough and husky enough to make fast work of it.*

*Arms reach up, contact castings under the car body, push, drop back to place. The car dumps easily and the expense of buying and hauling back and forth air dump apparatus for each of the twenty-eight cars has been saved. The car dumper was designed and built by Koppel Industrial Car and Equipment Company.*

### Mile long face

The quarry has been opened up along a straight line with a mile long face. At present this is being worked to a depth of 30 feet but will be benched down to establish a face of the full 60 feet of the deposit as rapidly as operating conditions permit.

Drilling is handled with a battery of ten electric blast hole drills. There are five Sanderson Cyclones, four Armstrongs and one Loomis Clipper. Last winter the drills put down approximately twenty-five hundred 40-foot holes which were shot last

March in the largest well-drill-hole quarry blast on record. 312,000 pounds of Hercules and DuPont explosives (two-fifths 60%, three-fifths 40%) fired by Cordeau-Bickford fuse were used in the shot and broke out approximately one and one-half million tons of stone—enough for the requirements of the first season's operations. The loading of this shot kept fifty men busy for seven days.

*Oversize set behind by the 170-Bs is drilled by jackhammers supplied with compressed air by a portable Sullivan compressor driven by a Westinghouse motor.*

Loading is handled by two Bucyrus-Erie 170-B 5-yard electric shovels. These giants of the heavy duty quarry and mining division of the complete Bucyrus-Erie line, are full-revolving machines on caterpillar type mountings, remarkable for the speed and sure control provided in such large and rugged units. They have no trouble in loading two heaping dippers of rock per minute or better and one shovel is good for an average of 180 50-ton capacity cars in a double shift or 18 gross working hours. During the past season it has only been necessary to operate one machine at a time to secure required output, the other serving as a standby unit.

The shovels are equipped with General Electric motors and Ward Leonard control. There are separate motors for hoist and thrust with twin swing motors to permit the speedy swing which contributes to the unusually fast operating cycle. American Steel and Wire Company Monitor wire ropes

*An Industrial track crane sets the electric pumps at the sump for dewatering. This unit is also used for moving track and trolley and for utility work at the plant.*

are used and Simplex No. 23—Conductor electric cables connect the machines to the power line.

### Oversize easily cared for

The stone occurs in strata from 8 inches up to 5 feet in thickness. Because of this variable thick-

*This general view of the face gives an excellent idea of the limestone formation.*

ness some oversize develops from the thicker seams. This is readily set behind by the 170-B's for secondary blasting. A portable Sullivan compressor with 50-hp. direct current Westinghouse motor receiving current from the trolley line has been mounted on a standard gauge push car and supplies air for this secondary blasting. Ingersoll-Rand Jackhamers do the drilling; Hercules powder the shooting.

For dewatering a sump is maintained in the center and here one DeLaval and one Allis-Chalmers centrifugal electrical pump, equipped with Allis-Chalmers motors, pump out the water through a 12-inch line.

### Electrified hauling

The rock is loaded to 50-ton capacity (30 yard) side dump Koppel steel cars. These are hauled by

*Trolley poles are set in concrete blocks which facilitate quick and inexpensive moving.*

Differential electric locomotives which combine the traction unit with an air dump car. Each of these

*Ingenious grade boards use a slotted extension upright mounted on a wooden cross-standard to carry the targets.*

locomotive-cars is equipped with four 260-hp. direct current Westinghouse motors. When handling the loaded train the locomotives with their load of rock weigh 100 tons with corresponding traction ability. On return with empties the weight is only 50 tons. At the plant the cars are dumped first, thus the locomotive-car retains the 100-ton rating till all cars are dumped.

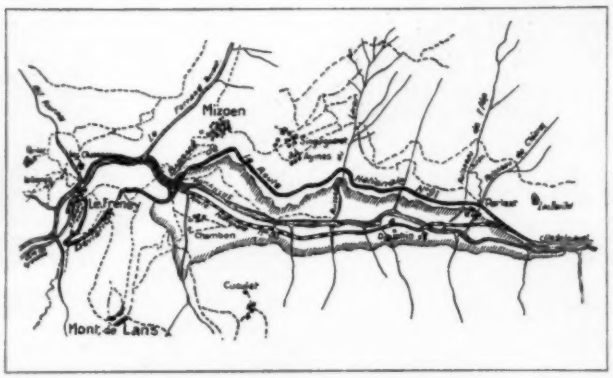
Four trains are used each consisting of one of the Differential locomotive-car and eight Koppel dump cars. This gives a total train capacity of 450 tons. The track is standard gauge with 90 pound rails and treated oak ties, well balasted with rock and with a maximum grade against loads (south bound) of 1 per cent and against empties (northbound) of 2 per cent. About five miles from the plant this line makes the rail connection with the Soo Line over which rail shipments are made.

Direct current at 600 volts for the railway operation is supplied by two substations, one at the quarry and one at the plant, each equipped with two 500 KW. General Electric motor-generator sets. The substation at the quarry also supplies power for the shovels at 2300V. AC., and to drills, etc., at 440V.

(Continued on page 594)

*Loading in the quarry is handled by two Bucyrus-Erie 170-B 5-yard electric shovels. Differential electric locomotives and Koppel cars do the hauling.*

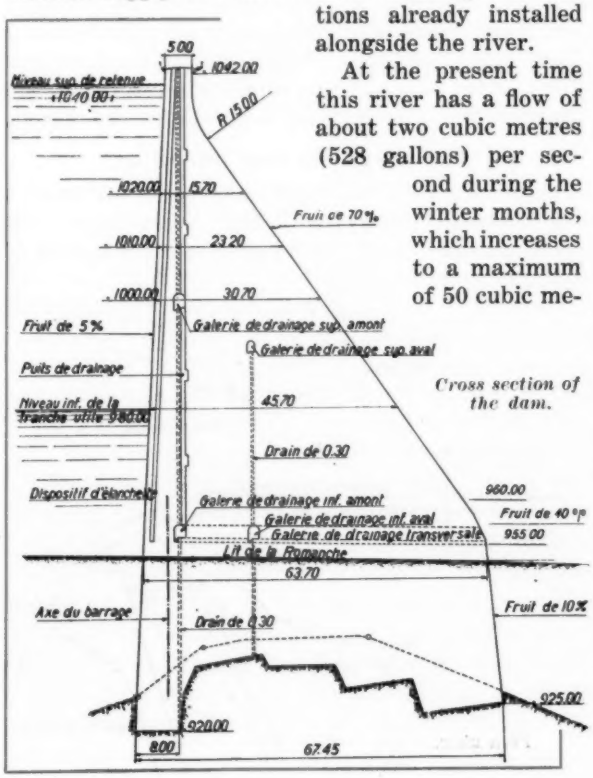
# French Firm Carrying Through Important DAM CONSTRUCTION PROJECT in French Alps




**Societe Campenon-Bernard dam Romanche to develop 70,000,000 KWH per year**

FRANCE is making great efforts at the present time to develop its resources of "white coal," and a very important project is in process of execution in the department of Isere, near to the border between France and Italy. This project consists in damming the river Romanche at a part where it flows through a narrow steep gorge, and thus creates a large reservoir. This will fill during the summer months when the snow on the glaciers melts, and insure during the winter months a continuous supply of water to the various power stations already installed alongside the river.

At the present time this river has a flow of about two cubic metres (528 gallons) per second during the winter months, which increases to a maximum of 50 cubic metres (13,208 gallons) per second in summer. Much of the power available in summer is lost, because many of the power stations are not equipped to take advantage of this greater amount of water; other installations have been built with a view to profiting by the summer high water, and consequently they give only a small output during the low water period of the winter months. The object therefore of the barrage, which will hold up a quantity of water estimated at 50 million cubic metres (13,208,500,000 gallons), is to regulate the flow of water so as to maintain it at something like 5.7 cubic metres (1506 gallons) per second in winter, and thus increase substantially the efficiency of the existing power stations, and of those still to be built.




*Cross section of the dam.*

**2,624 foot fall obtained**

The drop in level between the mean depth of the water in the reservoir and the junction of the rivers Drac (into which flows the Romanche) and Isere is 800 metres (2,624 feet) which is equivalent to a potential energy of 110 million Kilowatt-hours, and after making the necessary allowances for friction and efficiency losses, etc., the practical supplementary energy supplied by the dam will be something like 70 million KWH per year, or a permanent gain of 35 million KWH with the existing power stations.

The barrage is being built for the account of a limited liability company known as the "Societe de Regularisation des Forces Motrices de la Vallee de la Romanche," the shares of which are held partly by the French Government and partly by the power stations which will benefit by the scheme when completed.

The execution of the project is in the hands of the well-known French contracting firm, the Societe Campenon-Bernard of Paris.

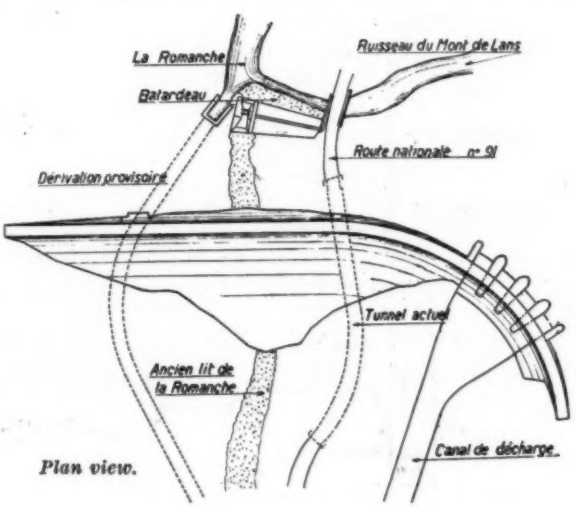
*Cleaning out a canal with Bucyrus-Erie 50-B equipped as dragline. The spoil is spread evenly across the berm between the bank of the canal and the row of trees.*

### Dam contains 379,320 cubic yards concrete

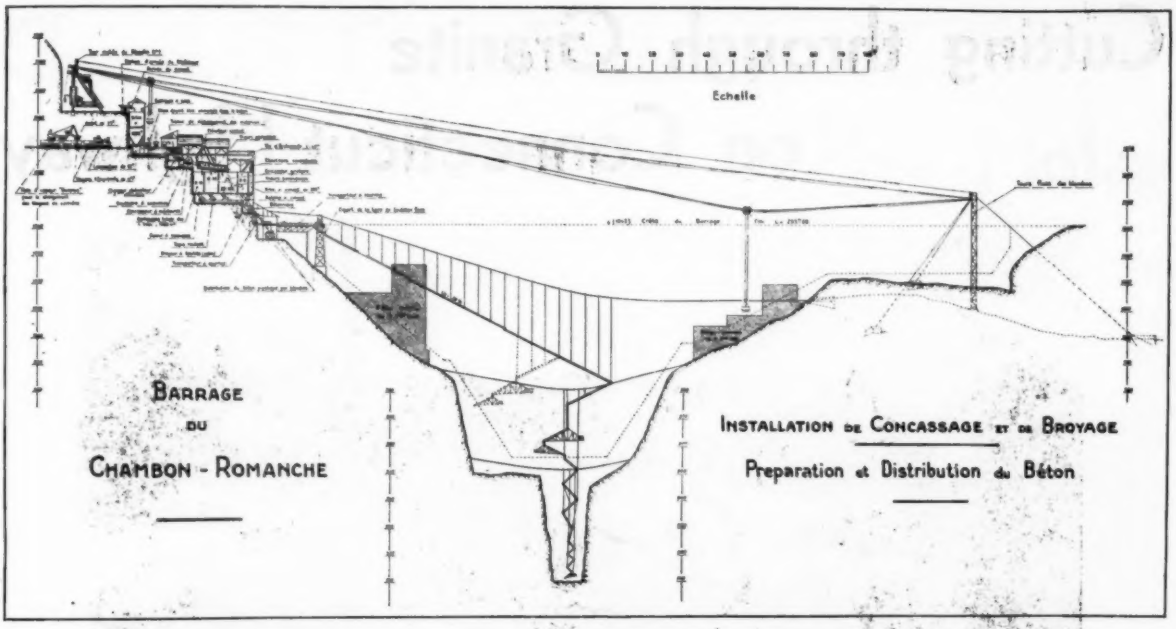
The dam will have a thickness at the top of 5 metres (16.4 feet) and at the base of nearly 70 metres (229.6 feet). The maximum height from footings to top is approximately 122 metres or 400 feet. The accompanying sectional plan gives a good idea of its size and of the installation of the crushing plant for the preparation and distribution of the concrete. The volume of concrete used will amount to about 290,000 cubic metres (379,320 cubic yards) including a percentage of stone blocks which has been fixed at 20%, distributed over the whole of the structure except the upstream facing. The stone is supplied by a quarry close at hand, and has first to be broken up by blasting, before being handled by the shovels. The holes for the blasting are drilled by six Ingersoll-Rand X70 and X71 superhammers, and the loading is performed by two 2-yard steam shovels, one of these being a Bucyrus-Erie type 50-B machine. Another Bucyrus-Erie machine of the same size is operating as a crane, preparing the site for the foundation of the dam. (See cover illustration.) Previously this same machine was fitted as a dragline, and used for cleaning out the canal taking water to the power station at Livet, which canal was partially obstructed by large glacial boulders, having been accumulating for many years, and which were of a particularly hard nature. In spite of this, and of the fact that the current was at times absolutely torrential, the machine was able to give a very satisfactory output.

### Dam also gives flood protection

Apart from the question of increasing the amount of electrical energy available, the barrage will serve another very useful purpose, namely, that of




*Plan view.*




*The above diagram shows method of construction.*

reducing to a great extent the terrible floods to which some of the villages below the dam have been subjected periodically, although, when it has been completed, the reservoir formed will itself submerge three villages. The floods referred to have been due, not only to the sudden increase in the amount of water, but also to the fact that the water brings down with it a large amount of solid matter, which gradually accumulates in the bed of the river, and raises it continuously. This solid matter, which amounts to something like 100,000 cubic metres (130,800 cubic yards) per year, will now be collected in the reservoir formed by the dam. This raises a new problem, namely, that of reducing the amount of such deposits, by reforestation of the valley of the river over the greater part of its course, or disposing of them by undertaking periodically extensive dredging operations. It is very probable, however, that owing to the cost of such work, it will be decided to allow the deposits to accumulate in the reservoir, in which case it appears inevitable that the volume of the latter will decrease at the rate of about 100,000 cubic metres per year, and that the whole basin will be filled up in about five hundred years.

The barrage is planned to be completed by 1933.

Mr. Campenon, who is the head of the Societe Campenon-Bernard, is not only constructing the barrages of Chambon (France) and Oued Fodda (Algeria), but is also carrying out very important jobs in other parts of France, on which he is using several Bucyrus-Erie shovels, 50-B, 41-B electric and steam.

## Build Roads for Unemployment Relief

EXPANSION of road building programs for the relief of unemployment as well as to relieve traffic congestion on the highways and reduce accidents from motor vehicles will be proposed to Congress in numerous measures as soon as it meets according to W. R. Smith, president of the American Road Builders' Association.

"The use of road building for unemployment relief will be emphasized in 40 radio addresses delivered by leading highway authorities in all parts of the country on December 8," declared Mr. Smith. "These talks will accentuate the fact that road building for unemployment relief was tested during the past year and it has been found most effective in putting men to work promptly. More than a million men were employed directly on road and street work, and two million other men were kept busy furnishing supplies, materials, and equipment to workers. Road building for unemployment relief has a tremendous advantage in that it brings the job to the worker—it is the most widely distributed activity in the country.

"Roads and streets can be bought at a bargain now," continued Mr. Smith, "and the low cost tends to offset the interest charges. The increment in national wealth due to good roads will remain long after the depression is forgotten."

"The need for highways is apparent to every man that drives a motor vehicle," states the head of a Washington news service in close touch with national opinion, "and it will be difficult to convince a man who gets in a traffic jam every Sunday that there are anything like enough roads. More than one-fifth of the country's population owns motor vehicles, and the other four-fifths drive with them.

---

He: "Did you ever hear the joke about the traveling salesman?"

She: "I'll say so, I'm the farmer's daughter."

# Cutting through Granite on Connecticut Highway

## A. Brazos & Sons, Inc. handles tough job

HARD GRANITE standing on edge was one of the problems A. Brazos and Sons, Incorporated, Middletown, well known Connecticut contractors, ran into recently on the Boston Post Road near Old Saybrook while building a 1½ mile cut-off to New York.

Digging was further hampered by a low-hanging power cable which could not be moved. Blasting was therefore confined to small shots of one to two pounds in perpendicular holes, 12 feet deep and spaced approximately three feet apart. Ingersoll-Rand and Cleveland Air hammers with 1¼-inch steel put down the holes with an Ingersoll-Rand Compressor supplying the air.

Brazos and Sons' new Bucyrus-Erie 42-B steam shovel received its baptism of fire in this 12-foot granite cut, 460 feet in length, and came out with colors flying high. With no chance to blast properly, the contractors banked on the 42-B to bring out the granite. The machine pulled out most of the rock with its teeth. Many of the granite rocks weighing around ten tons were chained and lifted out. Some blocks weighed 15 tons and these were removed in the same manner. Joseph Brazos, treasurer of the company, speaking about the 42-B, says he never saw a machine stand up and stay together that had the pounding that this one did on this job. The low fuel consumption, averaging 3,200 pounds of coal per 10 hour shift served to increase the owner's enthusiasm.

### Hauling with Mack Trucks

Approximately 19,000 cubic yards, (12,000 common and 7,000 rock) were excavated and removed in building the 32-foot-wide grade. Some of the excavated stones were removed from the cut and used to build head walls for the culvert and also in building basins, the balance going into the fill. Hauling was handled by Brazos and Sons' six 4-yard Mack trucks. The average length of the haul was about ¾ of a mile. An Erie shovel of ⅝-yard

(Continued on page 597)

# Clamshell Cuts Cost of Digging 4 by 4 Pier Holes

## Contractor J. Catucci uses 1-yard clam to good advantage on University of California new track stadium

by Geo. C. McNutt

"NEVER before used this outfit to dig such shallow, small holes, but everything we can do with machines is quicker and cheaper than hand labor."

So Operator H. L. Walker dug pier holes, scarcely 4 feet by 4 feet, for the University of California's new track stadium, with a Bucyrus-Erie crane fitted with a 1-yard Owen clamshell bucket. These holes are about 4 feet deep and have to be fairly accurately excavated, but Operator Walker, one of the best in Northern California, was equal to the job. The bucket with teeth outspread covers approximately the area of the holes, so Walker just dropped the bucket over the stake markers and bit in.

Of course, hand laborers had to trim up the holes after the Bucyrus-Erie passed on, but their work was light—the clamshell saved money and minutes for J. Catucci, excavating contractor, and C. Dudley De Velbiss, general contractor. Catucci's equipment on this job, in addition to the crane, includes a GA-2 Bucyrus-Erie 1¼-yard shovel, an Ingersoll-Rand compressor, and four trucks — Fageol, GMC, Mack and Autocar.

### Stadium must be ready for important 1932 meet

Any saving in time is important on this job, because the stadium must be completed in time to allow the cinder path to settle firm and fast for the athletes who will gather here as California's guests at the 1932 IC4A meet next June. Superintendent Early says the job will probably be finished early in February.

*Time and money are saved by using machines wherever possible. Here we see the Owen clamshell dumping to a Mack truck. In the foreground, holes already dug are being trimmed up by hand labor.*

*The open clamshell bucket covered approximately the area to be dug, so all that was necessary was to "bite in."*

Blueprints call for bleachers to seat 20,000 spectators, a 440-yard oval, two 220-yard straightaways, and training quarters for 150 athletes. The cost will amount to approximately $200,000.

As the new track stadium will occupy the site of the old baseball field, a new diamond is being built on adjoining property. Later a new men's gymnasium will be put up convenient to both diamond and stadium. The San Jose Excavating Company of San Jose, has the grading contract for both diamond and stadium and is using two "Caterpillar" Sixties with Ateco scrapers, a "Caterpillar" Thirty and scarifier, a P & H ½-yard shovel, and two trucks—a White and an Autocar.

Construction of the track and diamond necessitates the closing of one street and the widening of two others. The Oakland Paving Company has been awarded the contract for paving and widening.

*In the January EXCAVATING ENGINEER — a comprehensive*

**FORECAST of EXCAVATION for 1932 HIGHWAY CONSTRUCTION —**

*carefully prepared with the co-operation of state highway departments*

**WATCH FOR IT!**

**AUTHENTIC COMPLETE VALUABLE**

## Machine Age Contributes Liberally to Efficiency of New Inland Plant

(Continued from page 588)

AC. It is arranged for remote control so it may be started and stopped from the station at the crushing plant. Power is received at 66,000 volts over a 100 mile transmission line from the Cliffs Power and Light Company plant near Marquette.

The methods of carrying the trolley line in the quarry is of considerable interest. Concrete blocks about two feet each way have been cast on the base of each pole. These poles have ample stability to carry the line safely and, in moving the line, a track crane can easily pick them up and swing them to the new position desired.

### Special Problems Met in Designing Plant

Since the plant is designed to produce open hearth and blast furnace flux as well as various sizes of commercial stone, the variety of product demands a more extensive plant and storage arrangement than is ordinarily required. Shipment by rail or boat also complicates the problem. This will be appreciated particularly in the capacity re-

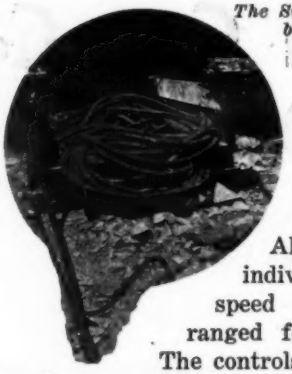
*Dipper 5-yards struck measure—23 foot 3 inch clear dumping height with 45 degree boom—39 foot 6 inches dumping radius from center line of machine.*

quired for prompt loading of steamers which carry from 9,000 to 11,000 tons.

Six sizes are being produced at present—open hearth stone from 6 to 14 inches; blast furnace flux from 2½ to 6 inches; commercial stone in three sizes, 1½ to 2½ inches, ⅝ to ½ inches, ⅛ to ⅝ inches, and minus ⅛ inch used as fine aggregate for concrete. Other sizes can be produced at will by changing the screen cloth.

### Mechanical control eliminates plugging troubles

The plant, designed by Stephens-Adamson Company of Aurora, Illinios, in conjunction with Wilfred Sykes, at present Assistant to the President of Inland Steel Company, has several features of outstanding interest besides that of its size and success in handling the special problems involved. One of these is the highly developed electrical control. All handling during crushing, screening, storing and loading is done entirely on belt conveyors, and



*The Simplex Conductor electric cable is carried on stone boats hitched behind the shovels.*

all sizing by roll grizzlies and vibrating screens. All equipment is driven by individual motors through speed reducer units and arranged for push button control. The controls for all motors are centralized at one point and connected for automatic starting in a sequence opposite to the flow of material. Thus the last stacker starts first and so on to the grizzly, each unit being allowed 30 seconds to clear itself before the preceding one gets into motion. In this way the whole sequence takes five to six minutes to get under way. They are stopped in the same manner in reverse order starting from the grizzly. Controls for the primary crusher end of the plant are centralized in the same way, the conveyor to the roll grizzlies starting first, then the feeder, then the primary crusher. Choking up from improper starting or stopping is thus eliminated. In event of failure or stopping of any unit all units feeding material to the one in trouble are stopped automatically and cannot be started until released from the point where the trouble occurred.

### Over 20,000 anti-friction bearings

The second point of outstanding interest is the extensive use of anti-friction bearings. Practically every bearing in the plant is of this type and the resulting saving in labor, lubricants, power, wear, maintenance and elimination of delays, makes a considerable item in the low cost operation attained by this plant. The vibratory screens use SKF ball bearings while most of the motors, reducers and conveyors use Timkens. There are approximately 20,000 Timken bearings in the entire plant.

From the quarry the cars enter the main crusher building on a fill. While the locomotive cars have air dumps, the Koppels are dumped by a special dumping arrangement consisting of two arms actuated by air cylinders which engage a casting on the side of the car body dumping the load over the inclined grizzly to the primary crusher. The operator, on a gallery above the track, can dump a car every two minutes or at the rate of 1,500 tons per hour.

Fourteen steel beams with manganese steel covers, ten inch openings, and set at a 38 degree angle make up the grizzly. The primary crusher is a 60-inch Allis-Chalmers McCulley gyratory driven through a Texrope drive by a 250-hp. motor. The product joins the undersize from the grizzly and is fed from an Amsco pan-conveyor-type feeder to

the main belt conveyor which is 48 inches wide and operates on 209 foot centers. This carries the stone to the scalping building where it is divided by two live-roll grizzlies.

The oversize, or plus-6-inch, goes to the first stacker for storage or can be diverted to a 42 inch by 77 foot conveyor for delivery to the secondary crusher building. The minus-6-inch is carried to the secondary crusher house where it joins the product from this unit to go to the screen house over a 177 foot belt conveyor. Here two parallel sets of single deck vibrating screens, each set consisting of two screens in tandem pick out the 6 inch to 2½ inch size and send it to storage or back to the secondary crushers (a 20 inch Allis-Chalmers McCulley type gyratory and a Symons cone crusher) for recrushing. The minus-2½-inch material goes to two triple deck vibrating screens with 1½ inch, ⅝ inch and ⅛ inch mesh wire cloth and with jets for washing. From these screens the products go by conveyors to storage or back to the crushers as may be desired.

Water for washing is furnished by three electrically driven DeLaval centrifugal pumps, two 6 inch and one 8 inch. The combined capacity of the three is 2000 gallons per hour at a 185 foot head.

*Drilling holes for the big shot. Note the shallow overburden which has been cast to the sides by one of the 170-B shovels.*

### Stackers of special interest

From the screens the sized materials are carried out to four stackers. The four long belt conveyors, two of which are 42 inches wide 853-foot centers, the other two are 36 inches wide 484-foot centers run out from the plant in walled runways extending clear to the end of the storage space. These concrete walls serve to increase the storage space. The stackers move back and forth on rails at the top of these walls carrying the conveyor belts up an incline, over a tripper and down again into the walled runway where they continue on out to the end. Here the tail pulley keeps the belt at proper tension due to a travelling carriage, a set of pulleys and suspended weight. The stone, discharged in the tower of the stackers, is carried by a 97-foot cross-conveyor 60 feet to the center of the long storage piles which lay alongside. The towers are self-propelling at a speed of 50 feet a minute. The open hearth and flux stone piles have a live storage capacity of 40,000 tons each and the space for commercial sizes will take care of 20,000 tons.

### Reclaimed and loaded at rate of 3000 tons per hour

From storage the stone is reclaimed by means of belt conveyors in tunnels below the piles. Under each pile is a concrete tunnel 400 feet long containing one 48 inch by 370-foot belt conveyor, which carries to a cross conveyor at the center of the pile.

The openings in the roof of the tunnel are spaced about 20 feet apart and are arranged with feed gates opened by lowering and closed by raising. The longitudinal 48-inch conveyors have a capacity of about 1500 tons per hour, while the cross conveyor, 60 inches by 487 feet, will carry 3000 tons per hour and handles material from both longitudinal conveyors.

The cross conveyor carrying out toward the loading dock, discharges to an inclined conveyor 60 inches wide by 160 feet long which is parallel to the dock. This in turn feeds the shuttle loading conveyor, 60 inches wide by 105 feet long. The latter conveyor is at right angles to the edge of the loading dock and is mounted on a motor driven movable tower. The conveyor itself is supported on a framework arranged so that the overhanging half of it on the water side may be lowered into the ship's hold at an angle of 25 degrees, thus reducing the amount of breakage during loading. The inclined conveyor is provided with a Merrick Weightometer for automatically weighing the stone as it passes on the belt.

The larger stone is passed over a screen just before it is delivered to the shuttle conveyor in order to screen out any fines which may have been made during the storing and reclaiming operations.

*The two center stackers. The automaitic shutoff leaves all belts clean when the plant shuts down and eliminates overloads in starting up.*

Arrangements are also made for loading to railroad cars, this being done by reversing the direction of the shuttle conveyor so that it discharges over a bar grizzly suspended above the cars. Any fines resulting from breakage during storage and re-

(Concluded on page 597)

The EXCAVATING ENGINEER

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## The Business Situation

AT THE PRESENT MOMENT we face a set of circumstances which suggest that we have rounded the corner of our business depression. We are told that there was some pick-up of business activity during October. We have seen the stock market take another tumble and we have seen consumer goods—textiles, shoes, tires, tobacco—experience a slight decline which is apparently seasonal. As we have said before the activity in these four consumer goods has led, in the past, to increased activity in producer goods.

Today we find that the amount of money in circulation has shown a falling off in the last few weeks. The rise in the figures for "money in circulation" has been due to a greater need for currency, brought about by the hording of money by both individuals and corporations. In other words the increase in circulation was due to an increase in hording. Thus the downward movement of this index suggests a very definite change in the public state of mind.

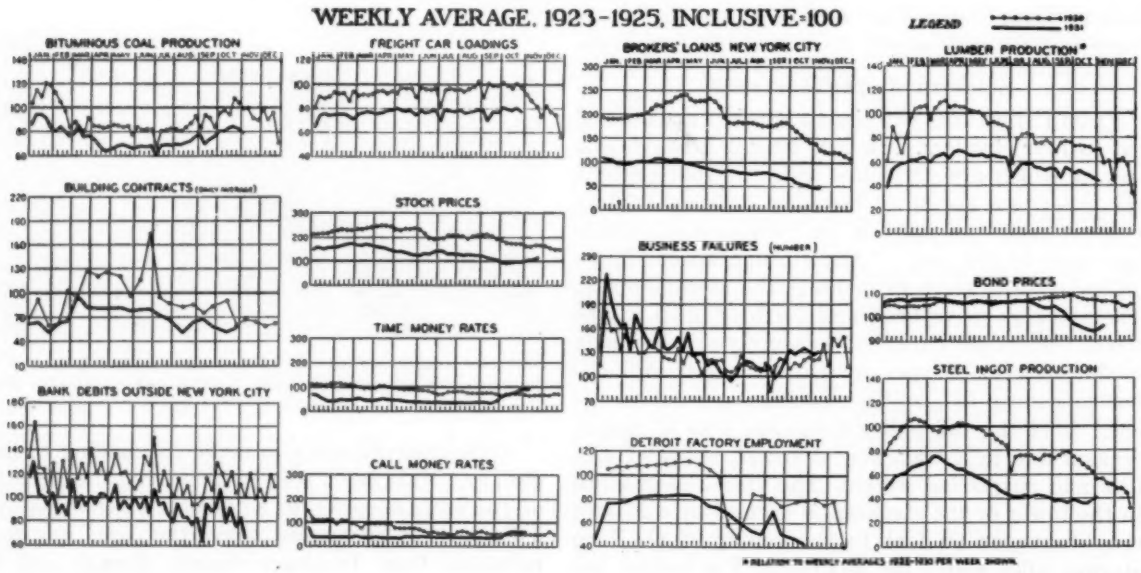
*The Cleveland Trust Company* in their *Business Bulletin* for November 15th present an unusually clear picture in their introduction. We quote:

"Three hopeful developments of real importance have appeared in recent weeks. One of them is such a slowing down of gold exports that recent shipments are of unimportant amounts. This tends to buttress the courage of business. Another is the appearance of a decrease in the amount of money in circulation, which is evidence that doubt is being dispelled by confidence. The third of these constructive developments is a general stiffening of commodity prices, with a sturdy advance in wheat.

"With these changes there has come a notable improvement in general business sentiment. There are not as yet, however, many real evidences of increases in business activity. The records of industrial and mining production reached new low points in October, as did the figures for the transportation of freight on the railroads. Stock prices went to the lowest levels yet reached in the first week of October, and have since then made fair technical recoveries. Bond prices reached their lowest levels so far in the latter part of October.

"Despite all this, however, and not overlooking the gloomy character of many of the third quarter reports of corporations, it still remains true that the developments of the past month are encouraging rather than disheartening. The sweeping Nationalist victory in England makes it sure that the country will adopt and follow strong fiscal policies. The reply to the rate petition of the railroads is evidence that the Federal authorities are beginning to see the need for a helpful policy in their regulation of the carriers.

"Among other recent developments that are clearly important, but less easy to interpret and evaluate, there should be mentioned the recent visit to this country of Premier Laval, the interim reports and recommendations of Mr. Gifford's committees on unemployment, the formation of the National Credit Corporation, and the discussions now going on concerning wage reductions among railroad workers. Probably the most important de-



velopment of recent weeks is not any one of those that have been mentioned. It is rather that the American people and their representatives at Washington have turned their attention from dreams of restoring the past to plans for meeting the future."

The more wholesome tone in October business sentiment, although not yet felt in the construction industry, is likely to bear favorably on the future revival of this industry according to October statistical reports issued by *F. W. Dodge Corporation.*

In connection with figures on construction contracts awarded in the 37 states east of the Rockies, this organization points to an October "revival of business and financial confidence from a state verging on panic toward a more healthy anticipation of constructive solutions of underlying financial problems. While this turn of sentiment is the essential first step toward recovery, it has not yet gathered sufficient momentum to affect favorably business volume or construction volume."

Construction contracts awarded during October amounted to $242,094,200 in the 37 states east of the Rockies, or 28 per cent under October 1930. Non-residential building led the three major construction classes with $99,092,400. This was followed by public works and utilities with $82,461,700; and residential building with $60,540,100.

Two of the thirteen Dodge districts produced October gains in dollar contract totals over that month of last year. Non-residential building contracts in the Metropolitan New York area, with a gain of $22,000,000 over October 1930, put the month's total for that district 12 per cent ahead. This gain was accounted for by the letting of contracts for three units of the Radio City project. The middle Atlantic territory showed a $23,000,000 gain in public works and utilities projects or a 31 per cent total gain over October of last year.

Comparison of the month with September records show advances in the New England, Metropolitan New York, and Middle Atlantic territories. In the first named the month's total of $25,362,800 was ahead of September's $22,989,000. In the Metropolitan New York area $89,518,600 compared with $67,483,500 in September. The Middle Atlantic district's $42,460,300 in October compared with $27,635,500 for September.

## Machine Age Contributes Liberally to Efficiency of New Inland Plant

(Concluded from page 595)

claiming are thus passed through the grizzly and spouted to a railroad car below, while the cleaned materials fall to a car on the track alongside. The fines are returned to the plant by way of the track hopper at the primary crusher.

To serve its stone plant the company has established a private harbor known as Port Inland. An area of about 65 acres is inclosed by a rubbelmound stone breakwater having a shore arm 1,478 feet long, a lake arm 750 feet, and a diagonal arm 1,450 feet or a total length of 3,678 feet. The dock or wharf is 900 feet long and 600 feet wide, with a concrete dock wall for 700 feet and timber wall for 200 feet. A sandfill behind the wall and over the conveyors tunnels forms the storage space for stone. The channel at the dock is dredged to 22 feet—200 feet wide and an additional 200 feet width is dredged to 16 feet. From the dock wall to the breakwater the width of basin is 800 feet.

Stephens-Adamson conveyors, vibrating screens, and roll grizzlies are used throughout the plant with Allis-Chalmers motors, Falk reducers, Cutler-Hammer controls, and Texrope drives.

### Well-equipped shop serves plant

Details of plant construction have been carefully worked out, feed hoppers being arranged as stone boxes wherever possible so that the stone wears on itself. All other spouts are provided with manganese steel line plates.

A large shop building served by a 50-ton Whiting overhead crane and by railroad tracks contains a complete installation of tools capable of handling work of any size. The power substation and main switches as well as the warehouse or supply room are also housed in this building.

The officers of the stone company are Clarence B. Randall, president; Wilfred Sykes, assistant to the president; George J. Nicholson, vice-president; Gordon W. Hughes, sales manager; W. D. Truesdale, secretary-treasurer; J. H. Morris, assistant secretary; and W. Moon, assistant treasurer. A. J. Cayia is superintendent and A. W. Heitman is his assistant. The main offices of the company are in the First National Bank Bldg., Chicago, Illinois, while a branch office is maintained at Manistique.

**JANUARY CONVENTIONS**

*American Road Builders' Association*
*Convention and 1932 Road Show*
*Detroit Municipal Airport Building*
*January 9-15, 1932* — *Detroit, Michigan*

*National Crushed Stone Association*
*15th Annual Convention and Exposition*
*Hotel William Penn*
*January 19-22, 1932* — *Pittsburgh, Penna.*

*National Sand and Gravel Association*
*16th Annual Convention and Exposition*
*Hotel William Penn*
*January 27-29, 1932* — *Pittsburgh, Penna.*

## Cutting Through Granite on Connecticut Highway

(Concluded from page 592)

capacity worked in the earth cuts and loaded to the Mack trucks.

Single shifts of 10 hours were worked throughout the job. J. Neal Brazos and Emil Malcarne pulled the levers on the two machines and did excellent work throughout. In spite of the tough digging the job was completed in less than ten weeks, from March 2nd to May 15th. The State of Connecticut was represented on the job by Engineer Daniel B. Starr.

# EQUIPMENT YOU OUGHT TO KNOW ABOUT

### New Balanced Hoist Increases Stripping Shovel Efficiency

ONE OF THE FEW definitely new features in shovel design to be introduced in this country during the past five years—the Bucyrus-Erie balanced hoist for stripping shovels—is announced only after more than a year's experience in the field with several installations.

This new hoist greatly increases the output of the stripping shovel by increasing the dipper size and by increasing the operating speed of the shovel. Its essential parts are a movable counterweight with the necessary guides and tackle, so arranged that as the dipper goes up through the bank in its digging motion the movable counterweight travels downward in its guides, counterbalancing practically all of the weight of the dipper and increasing the amount of digging force available. As the dipper is returned to the pit for the beginning of its next cycle, the counterweight is raised in its guides so that it is again ready to counterbalance the dipper on its way up through the bank. Thus, during the hoisting cycle practically all power of the hoist motors is spent in actual digging because the dipper's weight is counterbalanced by the descending counterweight.

Several important advantages are gained by the use of this hoist, which is built by *Bucyrus-Erie Company* of *South Milwaukee, Wisconsin*. Foremost among them are:

1. Increased digging power, both speed and digging force, without the use of larger electrical equipment.
2. Faster acceleration of the dipper in both digging and returning to the pit.
3. More accurate handling of the dipper—particularly when loading into cars.
4. Less heating of hoist motors and generators—lower average current and longer life.
5. Reduction of peak loads and consequent reduction in the current figure registered by demand meter.

The counterbalanced hoist makes possible the use of much larger dippers without any increase in the size of electrical equipment and without any appreciable increase in the total weight of the machine beyond increased weight of the dipper and dipper contents. The balanced hoist requires no increase in the total amount of counterweight; a weight equal to the movable counterweight would be found on an ordinary stripper as stationary counterweight. At the bottom of this page three views of a large coal stripping shovel, equipped with the Bucyrus-Erie counterbalanced hoist, are shown.

### Improved 7-8 Yard Wagon

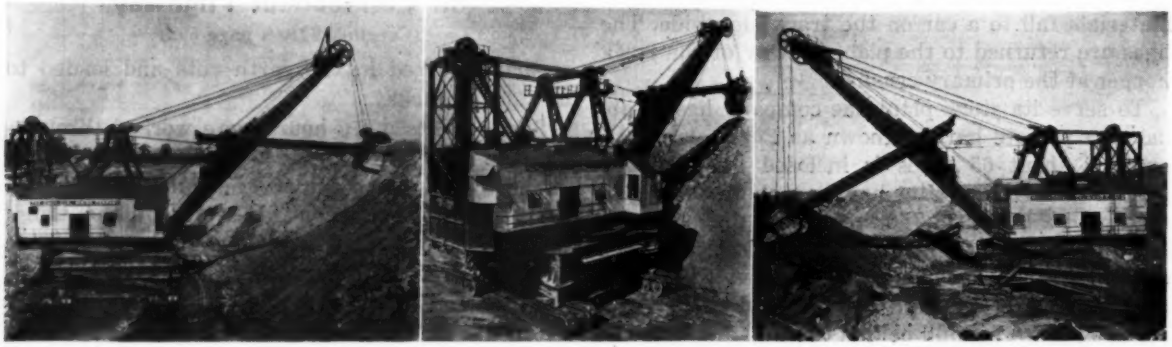
RECENT improvements in the LaPlant-Choate Roadlayer 7-8 yard Wagon will interest the dirt moving contractor. These include: the heat-treated cast-steel tongue, arched to permit turning on a shorter radius; the box type special cast-steel rear frame cross member and pullbar casting, bolted so that quick replacement can be made; new and simplified hand winding mechanism, roller bearing equipped; the cable and sheave arrangement which permits both doors to always pull up equally; and new style axle brackets.

A new hydraulic hoisting device has been perfected to permit either instant opening or gradual opening for spreading loose materials. Handwind wagons of this type may be equipped with the hydraulic hoist later if desired. The weight of this wagon has been reduced over 1,000 pounds. Complete information may be had by writing *LaPlant-Choate Manufacturing Company, Cedar Rapids, Iowa.*

### Caterpillar Auto Patrol Snow Plow

AN EFFICIENT road maintaining and snow moving piece of equipment, giving the owner year-round service, is announced by *Caterpillar Tractor Company, Peoria, Illinois*. Of this unit, the manufacturer says:

During these times many are faced with reduced income and it is felt that this unit that can be used in many ways during the year. Where a snow fighting piece of equipment could not justifiably be purchased on account of finances—a combined snow fighting and road maintenance machine



might be entirely justified. Due to the design and position of the blade the snow is moved to one side with the minimum of effort allowing the unit to move drifts of appreciable depth.

The design of the rear axle members—the absence of a differential permits the full power of the engine to be applied to the wheels. In every truck and in almost every fast wheel tractor the differential permits one wheel to slip in heavy snow, in slippery snow or on ice. Both wheels on the Auto Patrol grip the surface permitting the obtaining of maximum results.

Power control of the blade is of decided advantage in avoiding breakage of the plow and breakage of obstructions. Immediate raising or lowering of the blade permits a better finished job, also a maximum amount of work per hour since less time is lost raising and lowering the blade as would be the case of hand operation.

For complete specifications write Caterpillar Tractor Company, mentioning *The Excavating Engineer.*

### Crawl Tractor

THE new Hercules Crawl Tractor, a standard Model 60, 80 or 100 Hercules chassis mounted on two rugged crawler trucks, has been developed to meet the requirements of heavy duty tractor users and to fill the need of heavy construction and road contractors, municipal, township, county and state highway departments, for a tractor-road roller that will reduce the capital investment and supply one unit with the full utility of two.

The Hercules Crawl Tractor is capable of safely working on rough and broken ground. Each rear crawler unit is free to rotate on its axle and combined with the gyroscopic mounted front wheel, gives the machine a three point suspension which compensates for the most uneven ground encountered on any type of job and brings a stability and tractive force hitherto unknown under rough conditions.

All that is necessary to convert the crawl tractor into a roller is to jack up the rear end, take off the crawler trucks, and replace the roller wheels. The Hercules scarifier can be used with either equipment.

The model 60 crawl tractor develps a draw-bar pull of 8,000 to 10,000 pounds which may be increased for special work. The draw-bar pulls of models 80 and 100 are greater in proportion. For complete information write *The Hercules Company, Marion, Ohio,* mentioning this magazine.

### Welding Rod for Manganese Steel

A WELDING ROD for manganese steel has recently been patented by Frank A. Fahrenwald and assigned to *American Manganese Steel Company, Chicago Heights, Illinois.* The outstanding features of this welding rod, known as the Amsco Nickel Manganese Steel welding rod, are:

(1) perfect welds can be made by relatively unskilled operators;

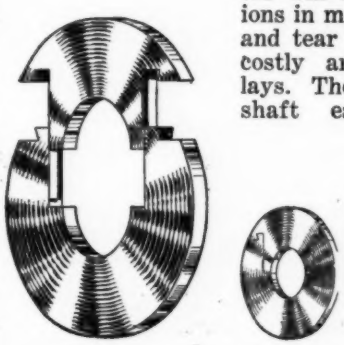
(2) when the rod is melted in the atmosphere and applied to ferrous metal articles, it exhibits the essential characteristics of standard heat treated Manganese Steel, namely toughness, ductility, resistance to abrasion and hardening under cold working; and

(3) the high nickel content (approximately 5%) overcomes any tendency of the metallic manganese content of the rod to oxidize and prevents embrittlement under slow cooling, which the rather high carbon content might cause in the absence of the high nickel content.

This new welding rod will be used in the repair of manganese steel castings and the reclamation of such manganese steel equipment as dipper teeth, crusher mantles and jaws, railway track members, etc. It also can be used for these purposes on parts of ordinary steel and for wear resistant coating on almost any kind of steel casting. For further information, write the American Manganese Steel Company, mentioning this magazine.

### Quick Repair Washer and Thrust Collar

AN IMPROVED Quick Repair Washer and Thrust Collar which can be quickly installed has been put on the market recently by Bucyrus-Erie Company. The new washers will keep gears and pinions in mesh, save much wear and tear and eliminate many costly and unnecessary delays. They can be put on a shaft easily and quickly without the delay and expense of dismantling shaft or other machinery parts.



These repair washers are of a new dovetail design. No pins, bolts or screws are used. When ordering it is necessary only to give inside and outside diameters and the thickness of the washers required. Send your order or write for further information to *Bucyrus-Erie Company, Specialty Department, South Milwaukee, Wis.*

INDEX

FOR VOLUME XXV

*January 1931 to December 1931, inclusive*

NOW READY

*SENT FREE ON REQUEST.*

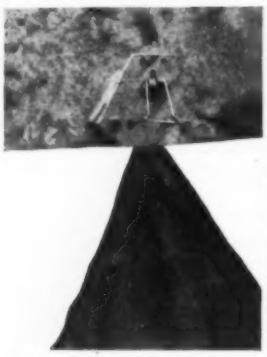
THE EXCAVATING ENGINEER

South Milwaukee Wisconsin

# FIELD NOTES

### Flag Holder

THIS NOVEL homemade flag holder was found attached to the back of a trailer used to haul sand. One section of a choker mouse trap was sawed out from the rest of the block. The bait trip and holder with the staples were removed. Two holes were put through the wood with a Yankee drill for two fairly heavy nails holding it to the trailer. A small knot was simply tied in one corner of the flag, pushed thru the hole below the spring and snugly caught and held by it.



Pressing down on the spring instantly released the flag which is very handy when wearing heavy gloves or mittens. When not in use, a flag should be removed and placed in the tool box where it cannot get dirty, water soaked and stringy. Some of them are an insult to safety as they look more like the tail of a black shirt. One should remember that a flag is required for your own safety and that of the other fellow entitled to a few road courtesies and privileges also.

*Frank W. Bentley, Jr.*

### A Lesson in Contracts

MANY YEARS of constant study of current court decisions convinces me that the one legal point on which excavating contractors need warning most is the matter of guarding against unexpected difficulties through encountering rock formations, etc.

The Pennsylvania Supreme Court very lately handed down a decision that well illustrates circumstances which often take excavating contractors into court as litigants, where a few simple words in an agreement would obviate any misunderstanding or room for litigation.

In the Pennsylvania case—McCabe v. Cannoe, 156 Atl. 77—a general contractor had sublet the excavation and masonry work to Nicholas Cannoe, who, in turn, subsublet the excavating to McCabe Brothers.

The work ran into rock, which apparently none of the parties had counted upon. The written contract held by the McCabes seems to have provided a single price for excavation, not specifying kinds of material. The McCabes claimed there was a later and unwritten agreement that Cannoe would pay more for rock excavation, reached by the parties after the rock was encountered. Cannoe denied that there was any such supplmentary agreement.

In McCabe Brothers' suit to recover extra compensation for the rock excavation, the jury found from the evidence that the original and written contract covered all excavation without classification of materials. The Pennsylvania Supreme Court upheld this decision. In other words, the excavating contractors were "out of luck" because they failed to have reduced to "black and white" an agreement that they should be paid more for rock excavation than for dirt excavation.

One interesting point incidentally decided by the Supreme Court was that the terms of the contract between the general contractor and Cannoe had no bearing upon the question whether or not Cannoe should pay the McCabes anything extra for rock excavation. Therefore, the court said that the trial judge should not have received that contract in evidence. Said the Supreme Court on this point:

"It was an independent contract in no way connected with the alleged contract between Cannoe and appellants [the McCabes]. A litigant cannot be affected by the words or acts of others with whom he is in no way connected. Plaintiffs [the McCabes] were not responsible for anything contained in that contract.

*—A. L. H. Street*

### Fan Keeps Operator Cool

OPERATOR Phil Adler who pulls the levers on A. E. Bounsall's Bucyrus-Erie 1035 now grading streets at Stevens Point, Wisconsin hates to get all steamed up on hot summer days. As the machine he is on is a gas rig not equipped with electric starter and battery, an electric fan was out of the question so Phil put his ingenuity to work to invent a substitute. He discovered that there was a large diameter pulley face on the

clutch driver and a belt on this face would line up just right to rotate a Ford fan on a standard take up mounting attached to the window ledge just beside his left ear.

An automobile scrap heap yielded the fan, an investment of $1.20 bought the belt and a few minutes for installing completed the job. And now when the 1035 is busy loading trucks a cool, gentle breeze keeps Phil's mind off the heat and also sets up no parking limits for roving flies and mosquitos..

Perhaps, before the next hot season is due, you'd like to copy Mr. Adler's device. You have our permission and Phil's, too. And in case you like the breeze perhaps it will help you remember to send in a description and picture of one of your pet tricks for making the dirt fly faster or easier.

---

In Front: "I feel like a three-year-old!"
Behind: "Horse or egg?"

# SHOTS FROM THE FIRING LINE

## Progress Made in Negotiations for $34,000,000 All American Canal

SECRETARY of the Interior Wilbur recently gave his approval to the form of contract between the water users in the Imperial and Coachella valleys of Southern California, who will be served by the All-American Canal, and the Government. On this project $34,000,000 of Federal money will be spent in the construction of an irrigation ditch six times as big as Uncle Sam has ever dug before, and repaid in installments over a period of 40 years. The total excavation required is between 60,000,000 and 65,000,000 cubic yards. The length of the All-American Canal will be 80 miles, that of the Coachella branch 130 miles.

Its acceptance by the Department is a definite step toward executing the canal feature of the Boulder Canyon Project which is second in importance only to Hoover Dam. The Boulder Canyon Act provides for the construction of the All-American Canal, lying entirely within the United States and its use in place of the former Imperial main canal which runs for some distance through Mexico. The contract now goes back for approval, through a special election to be held by the water users, when it will be ready for final signature by Secretary Wilbur and appropriations by Congress for actual construction.

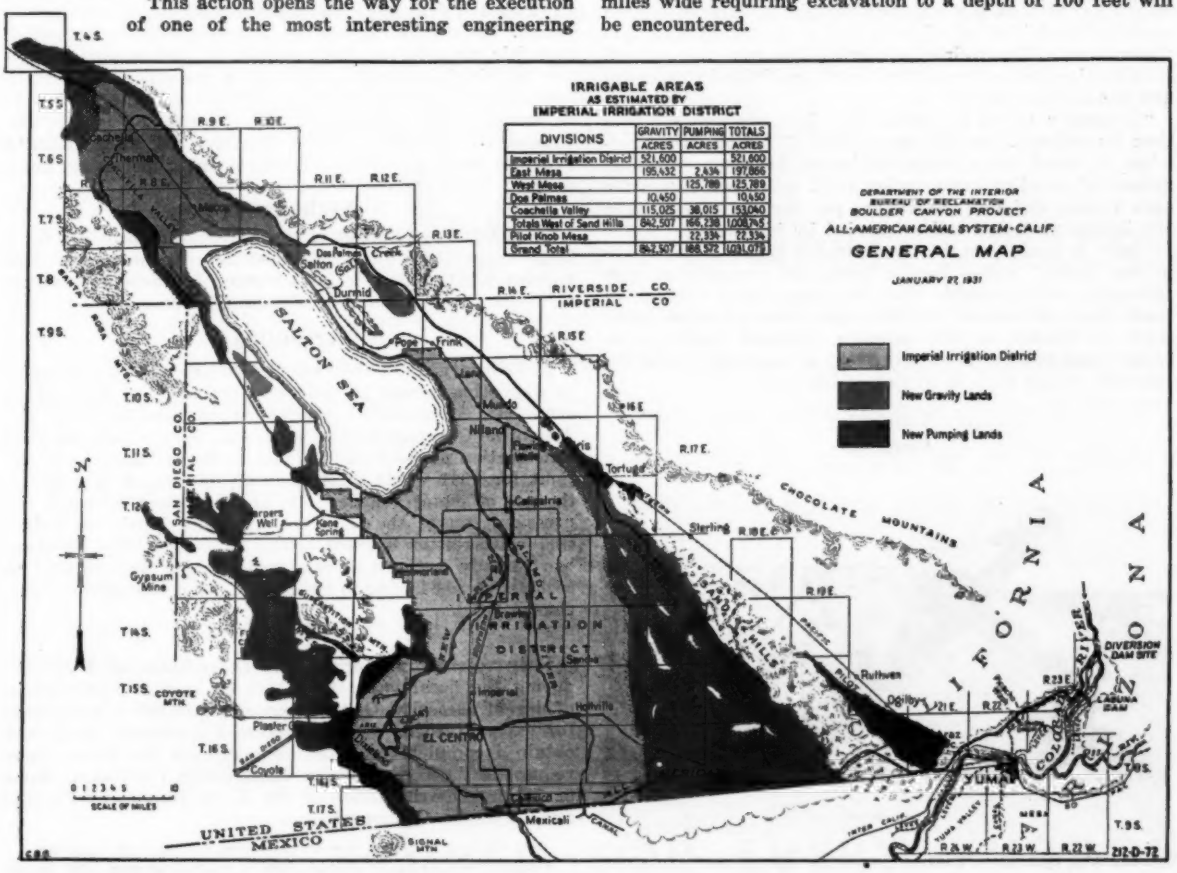
This action opens the way for the execution of one of the most interesting engineering projects that the Government has ever undertaken. When Hoover Dam is completed and is storing the flood waters of the Colorado River Basin, water will be released as desired and will come down the river until arriving at a point 15 miles above Yuma. There a long, low weir dam costing $2,700,000 and resting only on the sands of the river bottom will divert the water into a canal which will be 134 feet wide on the bottom, 22 feet deep, and 200 feet wide at the water line. This canal will carry as much water as does the Potomac at Washington and twice as much as does the great Rio Grande in its average flow. In it will flow what is thought to be the strongest current of any artificial waterway in the world.

As an irrigation proposition muddy waters that leave their silt on the land constitute a difficult problem. Hoover Reservoir will have taken much of the silt out of Colorado River waters, but a series of six basins costing $3,300,000 will be built into the All-American canal headworks. The water entering the canal will be run through these basins and all which passes on will be skimmed from the top as the sediment settles. Then as these basins fill up they will be eliminated from the chain one at a time and sluiced out, the silt running back into the river.

When the 200-foot-wide canal, carrying 15,000 second-feet of water, arrives at a point 3 miles north of Yuma 2,000 second-feet will be diverted, given a drop, made to yield its contribution of electric power, then carried to and syphoned under the Colorado River, and returned to the Arizona side where it will furnish abundant water for the Yuma project.

Six miles further along the big canal will reach Pilot Knob. Here it will yield up 3,000 second-feet more of its water which will drop 50 feet, generate more electricity, and return to the river.

A canal carrying 10,000 second-feet will proceed toward Imperial Valley where a range of shifting sand dunes 10 miles wide requiring excavation to a depth of 100 feet will be encountered.


IRRIGABLE AREAS
AS ESTIMATED BY
IMPERIAL IRRIGATION DISTRICT
DIVISIONS | GRAVITY ACRES | PUMPING ACRES | TOTALS ACRES
Imperial Irrigation District | 521,600 | | 521,600
East Mesa | 195,432 | 2,434 | 197,866
West Mesa | | 125,789 | 125,789
Dos Palmas | 10,450 | | 10,450
Coachella Valley | 115,025 | 38,015 | 153,040
Totals West of Sand Hills | 842,507 | 166,238 | 1,008,745
Pilot Knob Mesa | | 22,334 | 22,334
Grand Total | 842,507 | 188,572 | 1,031,079
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
BOULDER CANYON PROJECT
ALL-AMERICAN CANAL SYSTEM-CALIF.
GENERAL MAP
JANUARY 27, 1931
Imperial Irrigation District
New Gravity Lands
New Pumping Lands
SALTON SEA
IMPERIAL IRRIGATION DISTRICT
CHOCOLATE MOUNTAINS
EL CENTRO
Mexicali
YUMA
UNITED STATES
MEXICO
CALIFORNIA
ARIZONA
DIVERSION DAM SITE
SCALE OF MILES

Thus is the reach of the project laid down. All together it will make it possible to irrigate about 1,000,000 acres. These lands, largely below sea level, lying in the most nearly tropical area in the United States, yield prodigiously under irrigation and of non-competitive crops that can not be grown at all or at the same season in other sections, so that there is here no problem of adding to the agricultural surplus. Plans contemplate the completions of these canals by the time stored water is available from Hoover Dam.

## Sentinel of Safety Trophy Won Permanently by Cape Girardeau Plant

CAPE GIRARDEAU plant of the Marquette Cement Manufacturing Company by winning the Sentinel of Safety quarry trophy for its third successive year gained permanent possession of the trophy annually awarded by The Explosives Engineer to the member of the National Crushed Stone Association with the best safety record. Cape Girardeau led the quarries of the Association for three successive years in nation-wide safety competition conducted by the U. S. Bureau of Mines.

In winning the 1930 contest, the Marquette Plant had a perfect safety record with a total exposure of 224,514 man-hours. A new trophy for quarries competition to replace the one Cape Girardeau won, is being provided by the Explosives Engineer and will be ready for the 1931 winner of the National Crushed Stone contest. The trophy is a bronze plaque symbolic of quarrying and is a facsimile of a scene on the Sentinels of Safety trophy also offered by The Explosives Engineer to the winners of the National Safety competition, the great Nation-wide contest when coal mines, metal mines and quarries compete in Safety.

## Trucks vs. Railroads

IN AN address before the American Society of Automotive Engineers, W. R. Smith, President of the American Roadbuilders Association, stated:

"The Interstate Commerce Commission figures show that only 3 per cent of the available freight is handled by the combined activities of electric railroads, trucks and airplanes. . . . The railroads handle 75.8 per cent of all freight, pipe lines convey 4.9 per cent, and inland waterways now handle 16.3 per cent . . .

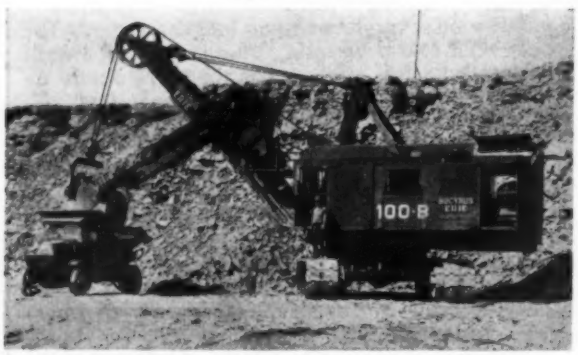
"Passenger travel by automobile is many times larger than by railroad. In 1929 there were 31 billion passenger-miles of travel on railroads. Estimates based on 15 billion gallons of gasoline consumption at 12 miles per gallon for each vehicle and two passengers per car show more than 350 billion passenger-miles traveled by highway.

"Only a small part of the 3,000,000 miles of highways in the United States handle trucks in competition with railroads. It is probable that the competitive mileage of roads does not exceed 300,000; and other 2,700,000 miles serve as feeders to the railroads. Without highways as feeders and arteries for the delivery of railroad freight the railroads would have to go out of business."

## *Canada*

## Ontario

By DAVID BAIN




**Innerkip Quarries, Limited,** use the above outfit in their quarry at Innerkip. The Bucyrus-Erie 100-B is equipped with General Electric Motor and loads to Mack trucks carrying Easton Phoenix dump bodies. Operator R. W. Campbell who handles the levers of the 100-B is standing on the left cat in the picture. Mr. Campbell tells us the 100-B has turned out as high as 140,000 tons a month with 7240 tons as a record for one day of 22 hours. Handling the opposite shift from Mr. Campbell is Operator K. R. Clark. H. M. McQuoid is the Superintendent at Innerkip Quarries.

**A highway 70 miles long** will be constructed between Madoc and Perth, Ontario, at a cost of approximately $1,000,000. This new road will provide a through highway from Sarnia to Ottawa and shorten the travel distance from Ottawa to Toronto by 45 miles.

## *Foreign*

## Cuba

**For the fiscal year** ending June 30, 1932, $15,000,000 has been appropriated for road construction in Cuba. About $1,000,000 is to be expended in the construction of the new highway, about 12 miles long, connecting Havana with the town of General Machado, where the airport of the Compania Nacional Cubana de Aviacion Curtiss is located. The McKinley road on the Isle of Pines is being graded and resurfaced. This work is expected to be completed in time to permit rapid movement of citrus fruits during the approaching season. Arrangements have been made also to start work on another route, from the McKinley section of the Isle of Pines to Santa Barbara, which will be especially beneficial to shippers of grapefruit from the interior of the island.

The Havana Province section of the Cuban Department of Public Works has under construction a new highway approximately 12 miles long, from the town of General Machado to Havana. The road is a two-way road, each way being 19.6 feet wide with a planted area of the same width between. The construction is of Telford water-bound macadam base with an asphaltic surface, the base being 12 inches thick and the water-bound macadam cap 4 inches. The surface course is to be a two-inch "Cubalite" asphaltic material (a rock asphalt of high asphaltic content obtained in the Province of Matanzas). The cost of construction is estimated at $1,000,000, and the road is to be completed by June, 1932. The contractor is the Cia. Urbana Contratacion. M. A. Gonzales del Valle, Havana Province Section of Public Works is the Supervising Engineer.

## Netherlands

**The 1932 State Budget** of the Netherlands provides for a total expenditure of $13,266,000 for highways. Of this amount $2,673,300 is to be advanced to various provinces to assist them in their construction plans.

## Argentina

**In February, 1931,** the various gasoline and oil companies in Argentina agreed to collect a surcharge of about **three cents** (U. S. currency) **per gallon** on gasoline sold. The Argentine Government was to receive the proceeds **for road construction purposes,** and it was estimated that the collections for 1931 would total about $5,400,000. A decrease in the use of motor vehicles, due to the present economic depression, caused the Minister of Public Works to reduce this estimate to approximately $5,100,000. The Minister has already authorized road construction and repairs to cost about $4,849,000, to be derived from the gasoline surcharge fund.

## Italy

**Italy recently authorized the expenditure** of $7,890,000 during the fiscal year of 1931-32 on special public works of urgent necessity. Of this amount $1,104,000 is authorized for expenditure on roads. Interested American firms may obtain a complete copy of the report on the decree upon request to the U. S. Foreign Construction Division at Rome or to any District Office of the U. S. Bureau of Foreign and Domestic Commerce.

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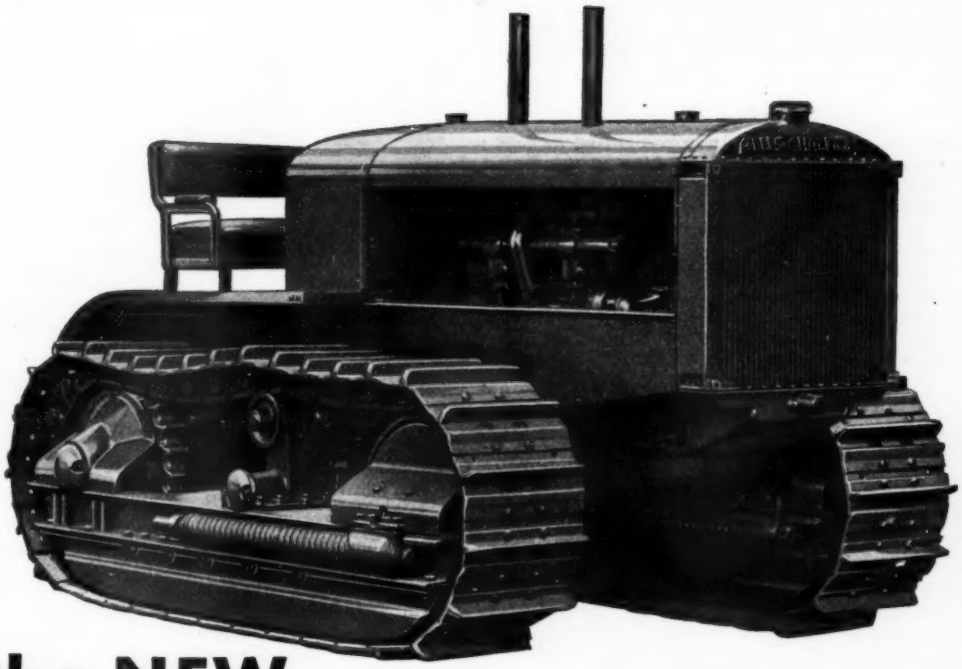
**Oscar the Operator allows that a patrol wagon isn't much of an automobile, but it'll do in a pinch.**

# 6 SPEEDS - 6 CYLINDERS



## in the NEW HEAVY DUTY FAST MODEL "L" TRACTOR

Think what it means on a dirt-moving job — in many cases three round trips from load to dump while other tractors make two — hauling more — moving more dirt on each single trip.

When you realize that Allis-Chalmers Model "L" Tractors have been in the toughest kind of service well over 4,000 hours — with practically no repair expense—you know they are built to last.

Consider these Model "L" features—high road clearance, unit construction—no frame or subframes, easy accessibility to all working parts, valve in head engine and replaceable cylinder liners.

*It's a knockout!* Allis-Chalmers Dealers are ready to show you—

# Allis-Chalmers

MILWAUKEE, U. S. A.

## TRACTOR POWER FOR EVERY PURPOSE

In writing to Allis-Chalmers please use post card bound in the center of this number.

## Shots From the Firing Line—*Continued*

### Iraq

While still handicapped by lack of sufficient funds for an extensive road construction program, the Iraq Government has authorized an item of $1,981,950 in the Capital Development Works program, for road construction work and $414,275 for bridges. All highway work is directly under the Public Works Department of the Ministry of Economics of Communications, Baghdad.

### Tunis

Road building and maintenance was recognized as being of first importance at the last two sessions of the Grand Council of Tunisia. Notwithstanding the present economic crisis, increased budgets for road purposes were provided in yearly allotments of about 4,000,000 until 1933, of which the maintenance portion will amount to about $2,100,000 and that for new construction to about $1,900,000 annually. All road work is under the jurisdiction of the Office des Routes, Travaux Publics (Bureau of Roads, Public Works), Tunis, Tunisia. This Bureau has its own budget and does all purchasing of road machinery and plant.

### New England Notes

By BRUCE McCOWN

The Edward Balf Company's 41-B Bucyrus-Erie steamer is shown above loading to Mack trucks in excavating for the New Hartford post office. Ed Balf Company reports the 41-B as averaging nearly a thousand yards a day for twenty days on this job.

The Gow Company of Boston, New York and Philadelphia is sinking caissons on this job using a Marion gas-electric with the Hunt front end equipment.

Coath and Goss of Chicago have the general contract for the new Hartford post office.

### New Hampshire Notes

By J. C. ALEXANDER

On R. G. Watkins' job at Pittsfield, New Hampshire, the rock came out in large sections but as the accompanying picture shows, the 32-B was equal to the occasion. Robert Davis is at the levers of the 32-B. The R. G. Watkins Company offices are at Amesbury, Massachusetts.

### New York and Vicinity

By L. J. HENSLEY

In a recent sale requiring prompt delivery from stock at the Bucyrus-Erie Service Station, in Englewood, New Jersey, The Gerosa Haulage Corporation, carried the "First Shovel Across The New George Washington Memorial Bridge," in record time. Gerosa used one of their forty-

ton Roger Brothers, I-Beam, demountable-wheel trailers drawn by a Mack truck, in the delivery of this machine—a 32-B, one-yard gas shovel. Delivery was made to Charles Shaffer & Sons, of Buffalo, New York, who are at present doing a parkway job, Briarcliff Manor to Crotonville, New York. In addition to the 32-B, Ed Shaeffer is also using three Bucyrus-Erie steamers in the construction of two masonry bridges, approaches, ramps, culverts, and about two and one-half miles of county parkway work. This development, is being carried on under the jurisdiction of Department of Public Works, in conjunction with the Westchester County Parkway Commission in the extension of Westchester Parkway System.

The toll for crossing the new bridge was $3.00 and is based on the axle load. Shovels may be moved across this bridge at any time, night or day, without the necessity of a special permit. The new bridge which cost $75,000,000 has a main span of 3500 feet which is 300 feet above the Hudson River. The towers rise 600 feet above the water. Englewood is reached via the new bridge in about fifteen minutes while formerly the trip through the Holland tunnel or via the ferry took anywhere from one to three hours.

The Board of Hudson River Regulating District announces the removal of its offices from 44 Howard Street and 112 State Street to the Seventh Floor, Home Savings Bank Building, 11 North Pearl Street, Albany.

Ryan & Davis of Jackson Heights, Long Island, are using their Bucyrus-Erie 43-B in excavating for the foundations of the new Radio City, New York. The work is between 48th and 49th Streets and 5th and 6th Avenues. Excavation is mostly heavy rock digging as you may note from the illustration.

---

Wife—"You don't love me any more. When you see me crying now, you don't ask why."

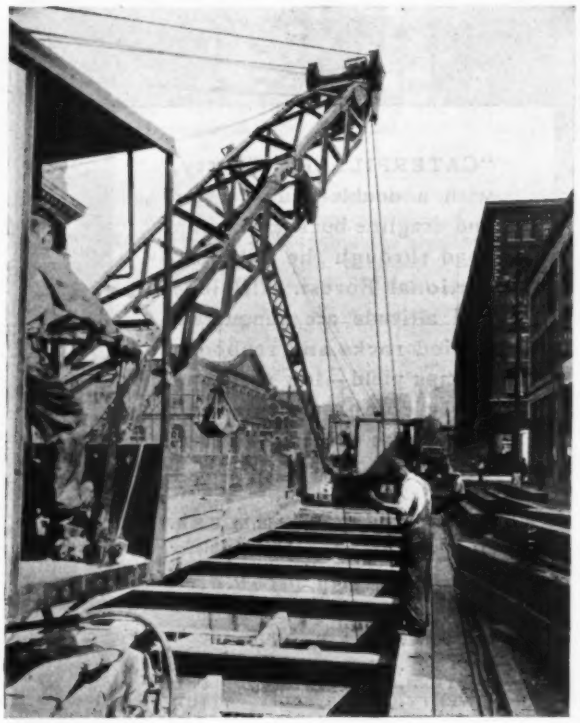
Husband—"I'm awfully sorry, my dear; but these questions have already cost me such a lot of money."

"CATERPILLAR" Thirty, with a double-drum Hyster and dragline bucket, carves a road through the Olympic National Forest. Hillsides and altitude are conquered, buried rocks and stubborn stumps yield—low costs and early completion reward those who selected "Caterpillar" power.
Caterpillar Tractor Co., Peoria, Ill., U.S.A.
Track-type Tractors Road Machinery
Combines
(There's a "Caterpillar" Dealer Near You)
Prices—f. o. b. Peoria, Illinois
TEN . $1100
FIFTEEN. $1450
TWENTY. $1900
THIRTY . $2375
FIFTY . $3675
SIXTY . $4175
CATERPILLAR
REG. U. S. PAT. OFF.
TRACTOR
CARVING A ROAD

For your convenience in writing to Caterpillar Tractor Co. you will find a card bound in this issue.

## Shots From the Firing Line — *Continued*

### Philadelphia and Vicinity



**Jafalla & Mark, Inc.**, of Philadelphia, Pennsylvania use their four Bucyrus-Erie 1030 electric crane-clamshells for excavating the new South Broad Street subway in Philadelphia. As the above illustration shows this is being handled as a cut and cover job. The 1030 electric machines are working part time on deck as cranes and part time underground as electric shovels.

### Delaware Notes

**At the Delaware State Highway Department bidding** of November 10th, **Walter Roach & Sons** of Georgetown, Delaware, were low on the 5.57 mile Dagsboro-Shaftox job including 11,500 cubic yards excavation, 17,000 cubic yards borrow; 5,700 cubic yards concrete paving and 1,664 lineal feet various sized pipe.

**Old Line Construction Company** of Chestertown, Maryland, was low on the 4.1 mile Georgetown-Springfield contract. This includes 8,000 yard excavation, 2,500 yards borrow, 9,000 yards gravel surface, 1,046 lineal feet pipe of various sizes. This company was also low with their bid on 3.83 miles, Frankford-Roxana, which includes 8,500 yards excavation, 8,500 yards borrow, 4,000 tons slag surface, 1,310 lineal feet assorted pipe.

**Edward Fay & Son** of Philadelphia were low on 1.86 miles between Farnhurst and Wilmington. This includes 108,000 cubic yards excavation; 760 lineal feet of pipe, 1,200 lineal feet of timber piling; 5,000 feet board measure of sheet piling.

**Joseph Cicone** of Philadelphia made the low bid on the Barker's Landing job which includes 4,000 yards of excavation and 260,000 yards of borrow.

---

Jones picked up the newspaper and was astonished to see an article stating that he had been killed in an accident. He immediately rang up a friend.

"Bill," he asked, "have you seen the article about my death in the morning paper?"

"Yes," replied Bill, "where are you talking from?"

### Washington and Vicinity

By R. M. ROGERS

Concrete footings of former government buildings couldn't stop **M. J. Dugan's GA-3**. The picture above gives a good idea of the digging encountered by the GA-3 while excavating for the foundation of the U. S. Revenue building. "Mike" Dugan himself was at the levers and kept things humping right along.

### Pittsburgh and Vicinity

By J. S. WEAVER

**The R. V. Baldwin Company**, Coraopolis, has been awarded the contract for the construction of the Montour Storm sewer near Groveton. Edward Smith is operating the shovel on this work.

**Henry Butch** has a Type "B" Bucyrus-Erie shovel working on street improvements on the Buhl Foundation on Mt. Washington. This is in connection with the Buhl Medical Center. Tony McGann is operating the shovel on this work.

**Bids will be asked** in the very near future for the construction of a storm sewer in Arnold and New Kensington. The contemplated sewer would take care of water from the hill district of both boroughs and eliminate flooding of the streets during heavy rainfalls. The plans were prepared by R. M. Douglass, Borough Engineer.

**The Pennsylvania Railroad** will take bids soon for the relocation and elevation of their line for a distance of two miles south of Linesville, in connection with the conversion of Pymatuning Swamp into a flood-water reservoir. The relocated tracts will run along the new lake for some distance. The dam is being constructed by the **C. R. Cummins Company**, Cleveland.

**A. G. Rothey**, Elizabeth, offered the low bid on the construction of the Marmet Lock and Dam on the Kanawha river.

**The Ben Construction Company**, Pittsburgh, was awarded two paving contracts by the Borough of Crafton. This work is in connection with the crossing work of the Pennsylvania Railroad in that borough.

**W. J. Reed**, Vanderbilt, has a Type "B" Bucyrus-Erie shovel on a coal stripping job near that borough. George Brady is operating the shovel.

**Robert Jones** is operating a Bucyrus-Erie 37-B shovel for the **Polino Construction Company**, Fairmont, West Virginia, near Mathias, W. Va. on state highway work. John King is doing the oiling.

**The Hagedorn Construction Company**, Brookville, was low bidder for the construction of an eight and one-half mile highway up White Face Mountain, New York.

**Joseph Gaudy**, that well known McKeesport contractor, in company with **Mr. Mansfield, Jr.** were visitors to our office. Mr. Gaudy is looking hale and hardy with all his work cleaned up at this time. He is looking for work to keep his organization together over the winter months.

---

When a man boasts that his thoughts are as pure as a baby's dream he never gives the baby's age.

# "HERCULES" RED-STRAND

REG. U.S. PAT. OFF.

## WIRE ROPE

## An Economical Shovel Rope—and Why

In the first place, "HERCULES" (Red-Strand) Wire Rope is economical because of the yardage it can handle for each dollar of its cost.

But that is not all. It costs money to put on a new rope and production work stops while it is being done. The long life of "HERCULES" makes changes less frequent, which means a big saving in both time and money.

—And the qualities that make "HERCULES" (Red-Strand) Wire Rope an economical shovel rope also make it economical for all kinds of work that requires strength and stamina.

Made Only by **A. Leschen & Sons Rope Co.** Established 1857

**5909 Kennerly Avenue**
**ST. LOUIS**

New York Chicago Denver San Francisco

In writing to A. Leschen & Sons Rope Co. please use post card bound in the center of this number.

## Shots From the Firing Line — *Continued*

### Buffalo and Vicinity

By G. E. PETERSON

The Port of Albany recently signed contracts with the **James Stewart Company** of Chicago for construction of the world's largest grain elevator. The amount of the contract was $1,497,225. The elevator will be built on the river front where the ocean liners dock for loading and unloading. It will cover about eight acres of land and will have a capacity of 13,000,000 bushels. The type of building will permit the storage of other commodities besides grain. H. G. Onstad, Vice-President and General Manager of the Stewart Company, stated that work on the new project would be started immediately. Peter Ten Eyck, Chairman of the Commission of the Port of Albany states that upward of 300 men will be employed during the peak of construction. It is expected that the major portion of the elevator will be ready in the early spring.

The above picture shows **Leo A. Malone's** 1025 Bucyrus-Erie which is in some real hard pan, as the boulders in the picture will show. Mr. Malone claims it would hustle some of the present day three-quarter yard shovels to keep up and dig with his machine, which has a ⅝ cubic-yard dipper on it. Paul Lyman, of Newman, N. Y., who has operated different types of gas and steam machines, who is operating this shovel since its arrival in early spring, swears by it. Oiler Whitely has this machine looking as clean as the day it left the factory, even when working under very dusty conditions.

By D. E. WHITE

**Canty O'Neill and Candell, Inc.** of Buffalo used the outfit at right on New York State Highway 63, 15 miles east of Warsaw. The Bucyrus-Erie Gas + Air with Blaw-Knox clamshell bucket loads the aggregate to a Beaumont bin. Sixteen cars of aggregate are handled per day of 11 hours.

**The prevailing rate wage law** was O.K.'d by New York State. The law must apply on all work done with state relief funds, the State Department ruled.

**H. M. Fenborg** of Canisteo, N. Y., who is operating Steuben County's 1020 Bucyrus-Erie out of Addison, N. Y., on a country road job, is trying to equal **Cliff Stinson's** yardage records. Cliff has the edge due to the fact he has a ⅝ yd. dipper on his 1025 compared to Hank's ½ yard dipper. But, on the level, if the County had all the dirt placed that these two move when they get together over a week-end, they would both be out of a job.


**WHEN HELL GATE WAS EXPLODED**

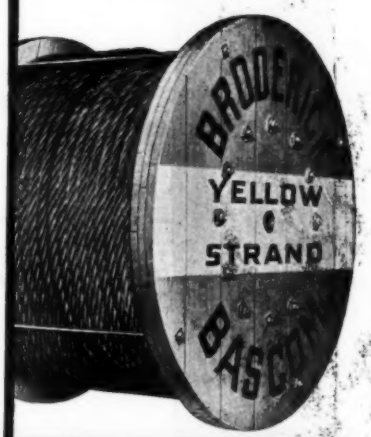
TWO important events in excavating history occurred in 1876—the Hell Gate Blast which cleared the ship channel off Long Island, and the first appearance of B & B Wire Ropes, which have dug and scraped for you ever since.

Try out Yellow Strand, most powerful of excavating lines—its wire drawn from Swedish Stock and *proved* by laboratory test to be uniformly and highly elastic, ductile, strong and tough. Particularly long service given by Flex-Set Preformed Yellow Strand.

Write for Catalog 51

**Broderick & Bascom Rope Co.**
St. Louis
New York Houston Portland Seattle
FACTORIES: St. Louis and Seattle

Wire for all B&B Ropes undergoes many important laboratory tests before being laid up into rope.




P 8

**YELLOW STRAND WIRE ROPE**

MADE OF WIRE DRAWN TO OUR SPECIFICATIONS FROM GENUINE SWEDISH STOCK

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# R·e·a·c·h.

THE effective reach of a Bucyrus-Monighan Dragline is not limited to its boom length.

After completing a section nearly as wide as its boom length, it can zig zag or back off laterally to the line of the work and finish an additional width of 50% or more. Bucyrus-Monighan Company, Chicago, Illinois.

BUCYRUS MONIGHAN

*Walking Draglines up to 8 cubic yards*

*Sold by*

**BUCYRUS-ERIE CO.**
**South Milwaukee, Wis.**

Representatives throughout the U.S.A. Branch Offices: Boston, New York, Philadelphia, Atlanta, Birmingham, Pittsburgh, Buffalo, Detroit, Chicago, St. Louis, Kansas City, Dallas, San Francisco. Offices or Distributors throughout the world.

B-12

For your convenience in writing to Bucyrus-Erie Company you will find a card bound in this issue.

## Shots From the Firing Line — *Continued*

The above view shows the Bucyrus-Erie 37-B shovel owned by Contractor **William Chetwin** of Syracuse, New York, grading and shallow digging on the highway near Woodlawn cemetery.

JAMES P. SCOTT

James P. Scott, 60, Vice-President of Scott Brothers Construction Company, Incorporated, died at his home in Auburn, on October 29th, after an illness of about one year. Mr. Scott was associated with his brothers Robert G. and the late William E. in the contracting business since 1897 and has been Vice-President of Scott Brothers Construction Company since its organization in 1923. He is survived by his widow and four children; two brothers, Robert G. and Edwin L. of Rome, and a sister Mrs. O. L. Watts of Monroe, Virginia.

## Detroit and Vicinity

By G. HENRY

**The Michigan State Administrative Board** at its meeting last week awarded contracts for winter road work involving a total of nearly one and one-half million dollars. Included in the work are 44.271 miles of grading and drainage structures, 10.215 miles of 20′ concrete pavement, 21.829 miles of gravel, 10 miles of grade widening and 10 miles of pavement widening, a total of over 96 miles of road work.

**H. W. McKenzie**, Dearborn, was awarded contract for road work on M-89 in Allegan county from Otsego to Allegan, 7.655 miles of 20′ concrete pavement, at $181,619.93.

**H. Campbell & Son** of Port Huron, were awarded two contracts on US-25 in Macomb county, the two projects consist of nine miles of grading and drainage structures at $46,154.62.

**Contract for wrecking the old Detroit Post** office building has been let to the **American Wrecking Company** of Chicago by the **Waldbridge-Aldinger Co.**, General contractors. **The Morris G. Laramie Company's** cranes, one equipped with with an 80′ boom, are removing the stone and old steel. **Charles Roger's** 41-B is also doing its share to have this building removed by January 3rd.

**The Bruce Excavating Company** has a Gas+Air working on the Dearborn sewerage disposal plant with William Shook operating. Their B-2 machine is working on the State Hospital job at Ypsilanti for the Otto Misch Company.

**The H. G. Christman-Burke Company** has let the excavating contract on the municipal power house at Wyandotte to the Joseph Hughes Company.

On November 1st the new east lane between Eleven Mile Road in Royal Oak and Lincoln Avenue in Birmingham was finished. The 4¼ mile stretch was completed in less than 60 days, for which the **J. A. Mercier Company** claim a near record as one of the most rapid jobs ever put through in the State.


BULL-DOG

Wedge Rope Sockets are the safest, quickest and most convenient way of attaching wire rope. BULL-DOG sockets are special annealled steel castings, designed so that the rope pulls directly in line with the point of attachment. They can be applied by unskilled labor and without special tools—and—they never let go.

*Ask for Bulletin S-10 for sizes.*

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*ORDER NOW*

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South Milwaukee, Wisconsin

Ship to_____
at_____ via_____
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pin size_____ jaw opening_____
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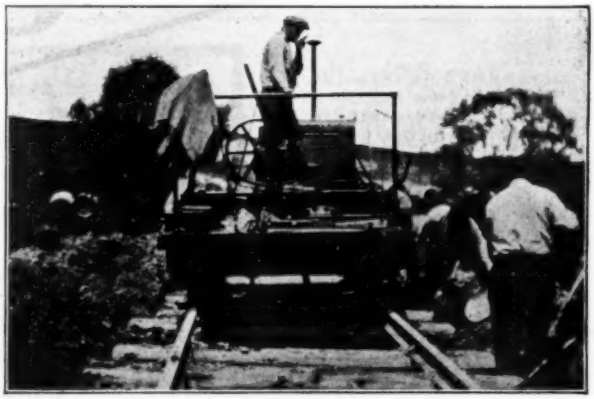
Address_____



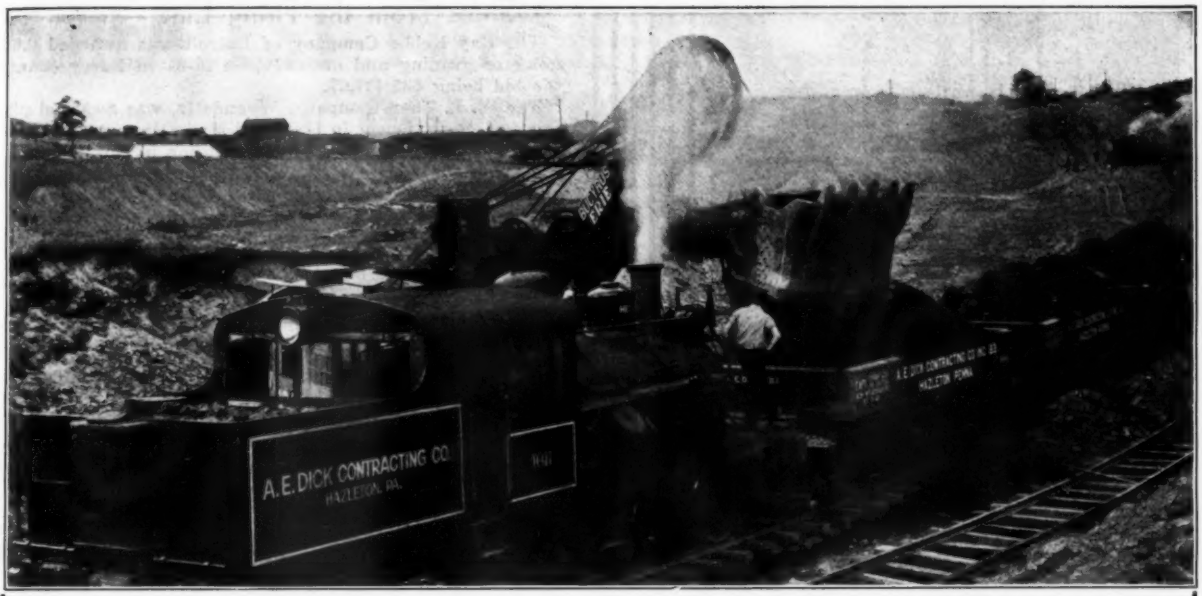


**A Machine for Shifting and Raising Your Track**

If you are operating a quarry or open pit mine, engaged in a construction job where track must be raised and shifted frequently, here is a money saving investment. It is no longer necessary to maintain a large labor gang for this work. No longer need there be delays to your other operations. This machine and a few men will do the work, saving you time and money. If you shift or raise track, you need this machine.

**NORDBERG MFG. CO., Milwaukee, Wis.**

THE NORDBERG PATENTED TRACK SHIFTER




These 12-yard narrow gauge Western air dump cars of the Drop Door type are giving great service in anthracite stripping operations. They easily carry 15 cubic yards.

# Here's a 12-Yard Narrow Gauge Car

# and It's a Western Air Dump

Look at the rock which J. Robert Bazley's narrow gauge 12-yard air dump cars are handling in anthracite stripping near Pottsville, Pa. Work like that requires a real car.

A smaller, narrow gauge model of the big Western Drop Door Air Dump Cars that are giving such wonderful service. Watch its record in anthracite stripping.

Speeds up the shovel. Saves labor on the dump. Hugs the track. Gives low loading height, unrestricted dumping, great capacity, low repair bills.

If your hauling calls for narrow gauge equipment, ask us about the 12-yard drop door Western. "The best car ever built," says one job superintendent.

*Write today for details*

**WESTERN WHEELED SCRAPER COMPANY**
**AURORA, ILLINOIS, U. S. A.**

WESTERN

**A STEADY PRODUCER THAT NEVER LOWERS ITS STANDARD . . . .**

THIS is what to expect of an Owen—Scooping up capacity loads every time from first to last trip—getting more work done—costing less to do it. Cleaning up the job in fewer hours—After one job is done—ready for the next with no time out for repairs or reconditioning. Just a sturdy, dependable worker doing a "bigger day's work than any other bucket of the same weight and capacity". A reliable producer—A money-saver and money-earner.

Write for Owen facts that substantiate.

**A Mouthful At Every Bite**

**The Owen Bucket Company**
6026 Breakwater Ave., Cleveland, Ohio

**Owen Buckets**


## Shots From the Firing Line — *Continued*

**The Ray Kebbe Company** of Detroit was awarded 2.667 miles of grading and drainage, on M-37 in Barry county, the bid being $33,437.67.

**The W. L. Thon Company, Wyandotte,** was awarded nine miles of 20' pavement in Ionia and Montcalm counties, there is over 800,000 cu. yd. of dirt excavation in this job.

### Indiana Notes

The above illustration shows the **Sherwood-Templeton Coal Company's** Bucyrus-Erie 750-B electric stripper at work in their Friar Tuck mine near Linton, Indiana. This machine is equipped with 95-foot boom, 64-foot handles, and 12-yard dipper.

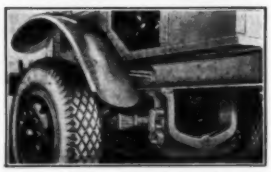
South of Crawfordsville on highway 43, this 1035 dragline owned by contractor W. H. Fudge is shown loading to trucks. Ed Wysong is at the levers.

### Kentucky Notes

**Campbell-Johnson Company, Incorporated,** of Pikesville have landed a nice five mile State Highway job in Floyd County. They expect to use two shovels on this job.


**HUG**

**Roadbuilder Trucks** *with Front Spring Rocker*



***Built to Meet a condition***

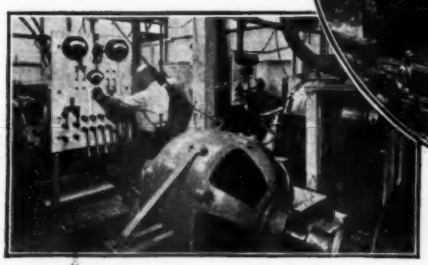
**THE HUG COMPANY, Highland, Illinois**

# GREATEST POWER BARGAIN IN CONSTRUCTION INDUSTRY

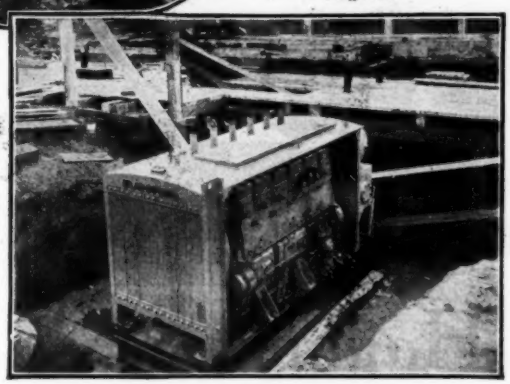
*Tractor, Atlas Diesel powered, on levee work. This tractor now engaged in pipe line and stripping operations.*

*Intercoastal Canal, Florida. On this dredge the 200 H. P. Atlas operates 22 hours a day, driving 10-inch pump and 30 KW generator.*

*Bucyrus-Erie shovel excavating a logging road. No water troubles. No ignition system. No spark plugs. Fuel costs 75% — 85% lower than gas. engine. Lugging power of steam engine.*



*Modern electric dynamometers in Atlas factories. One of many tests to which Atlas Diesels are subjected.*



*120 H. P. Atlas Diesel driving saw mill, three saw edger, log turner, sixteen foot carriage, saw dust conveyor, and cutoff saw.*

For over ten years the Atlas Imperial Diesel Engine Co. has been pioneering and developing the diesel engine for all classes of excavating and dirt moving equipment.

Now over one hundred thousand Atlas Diesel horsepower is in use in the construction industry.

Over a thousand shovels and draglines of Bucyrus-Erie, P & H (Harnischfeger), Link-Belt and Thew-Lorain have been equipped with Atlas Diesels.

In use in practically every country in the world—including Greece, Russia, Holland, Japan, India, Africa. And operated by native labor.

Proof of its unsurpassed operating economies, unique lugging power, lower maintenance cost and simple operation has led contractors the world over to demand equipment powered with Atlas Diesels.

Investigate the money-saving Atlas Diesel right away. For valuable facts, write to Atlas Imperial Diesel Engine Co., 2867 Glascock St., Oakland, California. Branches and distributors serve the entire world.

**THE POWER BARGAIN**

*for* — shovels, draglines, air compressors, rock crushers, tractors, industrial locomotives, dredges, oil field service, portable power, marine service.

**ATLAS** *Diesel Engines*

ATLAS IMPERIAL DIESEL ENGINE CO.

## Shots From the Firing Line — *Continued*

**Operator H. W. Warren** of Paducah, Kentucky is pulling the levers for Frazer & Cocke of Wickliffe, Kentucky on a Bucyrus-Erie 1035 shovel.

### Chicago and Vicinity

By H. C. HELT

**Herlihy-Mid Continent Construction Company** of Chicago is getting nicely started on their section of the new Chicago Sanitary District Sewage Disposal Plant at 130 and Cottage Grove Ave. Charles Herlihy is in charge of the job. There are 259,000 cubic yards of excavation for sludge beds and settling tanks and the dirt is being excavated by the **Q. M. White Company,** who are using some new motor driven elevating graders of Austin-Western make and Allis-Chalmers "Monarch" tractors. Austin-Western caterpillar wagons were purchased also for this job.

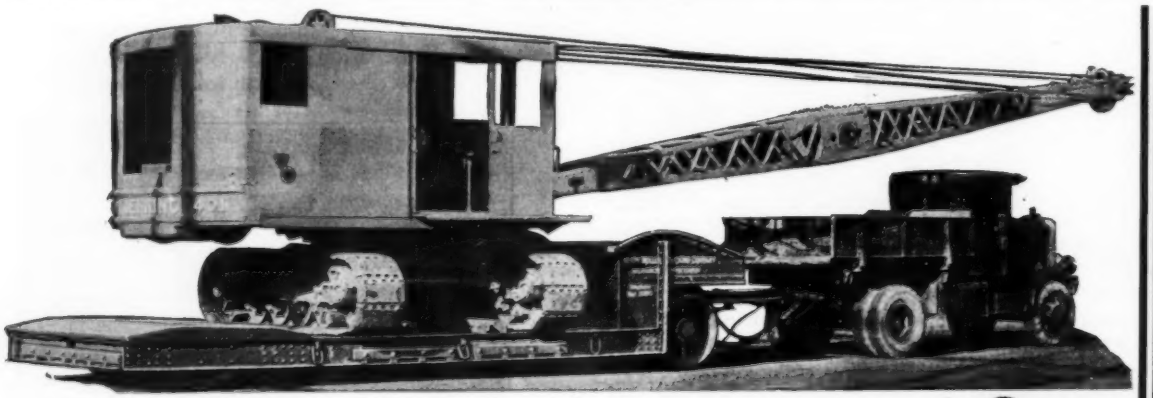
The Bucyrus-Erie E-2 Diesel dragline belonging to Herlihy-Mid Continent Construction Company is right on the job doing the "dirty work" and operator E. C. White is doing a good job pulling the levers on this machine. The first section of this sewage disposal plant is being handled by the **John W. Griffiths and Sons Company** of Chicago. They had some 45,000 cubic yards of excavation on their section of this job which is under the supervision of Mr. Don Willey of the John W. Griffiths and Sons Co. Ralph Henry is the operator pulling the levers on the 1½ cubic yard. Link Belt dragline and he is doing a good job of it handling some very tough blue gumbo clay. The W. J. Newman Co. is in charge of the excavation for the Griffiths Co. A 20-B Bucyrus-Erie steam dragline is helping out on the excavation.

**The Highway Department at Springfield** has cleaned up a lot of legal questions arising over the labor wage rate argument which was recently declared unconstitutional by the Illinois State Supreme Court, and the way is cleaned now for reletting about 11 million dollars worth of road work. This probably wont give as much employment this fall as it will next spring when the spring paving work starts.

**Reder and Seed,** large drainage Contractors of Goodland, Indiana are hard at work on their 369,000 cubic yard drainage job near the city of Morroco, Ind. Mr. Failure is pulling the levers and making the dirt fly on Reder and Seeds' new Bucyrus-Erie Diesel dragline and feels right at home on a Diesel machine. **The R. P. Stubblefield Construction Company** of Danville, Illinois are subbing some of this job and also have their new Bucyrus-Erie dragline working. Four machines altogether are doing the work and wonderful progress is being made by the Reder and Seed Company who hope to have most of the job done before freeze-up.

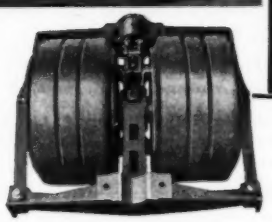
E. O. Sessions announces the formation of **E. O. Sessions Company, Ltd.,** consulting engineers, with offices at 5022 Sheridan Road, Chicago. This new company replaces the Sessions Engineering Company of 228 North La Salle St., Chicago.

**R. P. Stubblefield** of Indianola, was grading a road job east of Shumway, Illinois when the above picture was

# *Haul heavier loads —*

## *at lower cost* — with the trailer that pioneered the modern idea of *greater strength without added weight.* The WILLIAMS "Arch-Girder" Trailer hauls bigger pay loads — faster — at a new low cost. *Write for our Performance Bulletin.*



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**TRAILER'S LOAD IS EVENLY DISTRIBUTED**

by a rocking axle on each two-wheel unit. Every wheel is kept in contact on rough road, with plenty of clearance so that wheels cannot jam against the bridge.

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taken. This interesting view shows Caterpillar Sixties and LaPlant-Choate wagons ready for dumping into a fill over a good sized box culvert. Mr. Stubblefield on this job loaded with a Bucyrus-Erie 1½-yard gasoline shovel powered by Wisconsin Motor and operated by Bob Payne. With this job finished, he has since moved his outfit over near Morocco, Indiana where he has another contract. Here he is using a Bucyrus-Erie 1-yard Diesel dragline equipped with an Atlas Imperial engine and Leschen rope.

## Wisconsin Notes

By CARL J. BACHMANN

Included in Governor LaFollette's program of grade separation to provide some employment for Wisconsin men out of work, and which was financed by doubling the state gasoline tax, is the $125,000 **Lovers' Lane Grade Separation Project** on State Highway 100, mostly known as the "County Loop," west of West Allis and east of Greenfield Park. On this project the tracks of the Chicago & Northwestern Railroad and The Milwaukee Electric Railway & Light Company's Milwaukee-Watertown Rapid Transit Line are to be carried over the highway by means of fill and bridge construction. The contract for the excavation and fill work has been let by the railroads to **John Marsch, Inc.**, prominent railroad contractor of Chicago, Illinois. The material for the fill is being obtained from a borrow pit along the Chicago & Northwestern tracks and one mile west of the highway, where John Marsch's Bucyrus-Erie 50-B Steam Shovel loads it into International Dump Trucks. This material is being filled in around and worked under the tracks which will be raised over the highway. It is a good material for fill, being of gravel with a little clay. Approximately 110,000 cubic yards will be excavated. Frank Nerenhausen is Superintendent, Gus Mekalet and Ira Truex, operators of the 50-B.

## Minnesota Notes

**Crooked highways** have cost and are costing the American motoring public millions of dollars a year. During the one biennium of 1929-1930 Minnesota eliminated sharp turns, curves, steep grades and 82 railroad crossings and the length of the trunk lines improved was reduced from 842 miles to 740 miles, a saving of 102 miles. The saving in


Buckeye

TRENCH EXCAVATORS AND BACKFILLER-CRANES

The Buckeye Traction Ditcher Co.
Findlay, Ohio



AMERICAN STEEL & WIRE COMPANY WIRE ROPE

SO important is wire rope to industry—on excavating machines—on hoists—on elevators—and for a thousand and one purposes—that its users can afford only to specify a brand of proved dependability, economy and long life. Because of its outstanding records—and the known reliability of its maker—American Steel & Wire Company American Wire Rope will be found on most equipment where service requirements are severe.

*Made by the Largest Wire Rope Manufacturer in the World*

The illustration shows American Wire Rope in use on the world's largest electric shovel.

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SUBSIDIARY OF UNITED STATES STEEL CORPORATION
208 South La Salle Street, Chicago And All Principal Cities
*Pacific Coast Distributors:* Columbia Steel Company, Russ Building, San Francisco
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## Shots From the Firing Line — *Continued*

construction costs by reducing the distance of highways grades, prepared for paving or concreted amounted to $1,555,000. Minnesota expended $1,945,000 for new rights-of-way, but it would have cost $3,500,000 to pave and grade the 102 miles eliminated. In addition savings of tremendous proportions in car operating costs are being made to motorists in Minnesota through the abandoning of this 102 miles.

### Iowa Notes

By E. T. OBENCHAIN

**Work has been started** on the suspension bridge over the Mississippi River at Marquette. According to information available the cables will be made of 1050 wires each and will be approximately seven inches in diameter when completed.

**Ottumwa will quarry rock** for its own use, from the river bed. This project will help relieve local unemployment.

Work has started on the **new Post Office** at Cedar Rapids. **Wm. Boyd** is excavating for the foundation.

**Most of the boys** forgot the depression long enough to make it tough for the pheasants when the season opened recently.

**Ed Hughes** of Des Moines is keeping his Gas-Air shovel busy removing some of the hills and high banks in the down town section.

**Des Moines Asphalt Paving Company** are working on a bridge job in Marshall-Putnam counties in Illinois.

### St. Louis Notes

By A. J. KOENIG

**Immediate resumption of the state highway program** and contracts for approximately $32,000,000 worth of hard road work during the winter will follow the ruling of the Illinois Supreme Court holding the prevailing wage rate law unconstitutional.

On November 2nd bids were received on 122 miles of paving and pavement widening, 32.6 miles of grading and twenty-six bridge projects, amounting to $4,691,632. This is the first letting since July 1st and comprises most of the contracts that were awarded under the Prevailing Wage law, which contracts were invalidated by the Court's decision.

Whether the contractors who were successful bidders under the Prevailing Wage act will get to finish these jobs by virtue of being low bidders on the same jobs cannot be ascertained at this time. If not the State will no doubt settle promptly its obligations for work done under the invalidated contracts.

On November 12th another letting was held at Springfield for various projects estimated at $5,000,000. Bids were received on 85.9 miles of paving, 36.5 miles of grading and a number of bridge sections. Another letting is scheduled for November 30th. Estimated amount $4,000,000.

**Following are some of the low bidders** on the Illinois letting November 2nd—7.35 miles of paving in Christian county, **Hartman-Clark Brothers**, $107,437. 2.31 miles of paving in Christian county, **J. C. O'Connor**, $36,411. 2.51 miles of paving in Montgomery county, **Nelson Construction Company**, $28,589. 7.59 miles of grading in Sangomon county, **Central Engineering Company**, $103,500. Two bridges over Panther and Silver creeks in Calhoun county, **Vincennes Bridge Company**. Three bridges in Sangomon county, north of Springfield, **Clinton Bridge Works**. 6.88 miles of grading in Calhoun county, **John Kenney & Sons**, $87,430.

Bids for paving and improving about 10 miles of St. Louis County highways were received by the County Court. The low bids aggregate $371,533 or $159,731 less than the engineers estimate of $531,294. The projects and bidders were as follows: 30,529 feet of 20 foot concrete on Olive Street Road, **George W. Condon**, Omaha, $209,447. 9100 feet of 20-foot concrete on Wood's Mill road, **Keely Brothers Construction Company**, $72,163. 3950 feet of 20-foot concrete on Laclede Station Road, **Independent Quarry & Construction Company**, $32,982. Olive Street road from Midland to Ferguson Avenue, widening to 40 feet with asphalt composition covering, **Moore Brothers Construction Company**, $32,559, 1700 feet gravel strip on Hoeneker road; 2800 feet of 14-foot macadam on Bernard Avenue, **Industrial Construction Company** at $8,975 and $15,427 respectively. Contracts will be awarded at once.

An ordinance appropriating $906,000 for the construction of another **west approach to the Municipal Bridge** has been approved by the Public Utilities Committee and the Board of Aldermen in St. Louis. The approach will extend from Gratiot and Seventh to Twelfth and Poplar Streets.

The Committee also approved an ordinance for $500,000 for the construction of **five new clarification basins** at the new Howard Bend Waterworks. Bids will be asked for at an early date.

**Counties in Missouri** which can supply free right-of-ways for Marm-to-Market roads will benefit during the coming winter in the expenditure of about $4,000,000 that the state

INTEREST PAYABLE — The use of a Hayward Bucket pays interest regularly in the form of lower excavating costs. Address The Hayward Co., 52-54 Church St., New York, N. Y.
Hayward Buckets

LOWER YOUR COSTS

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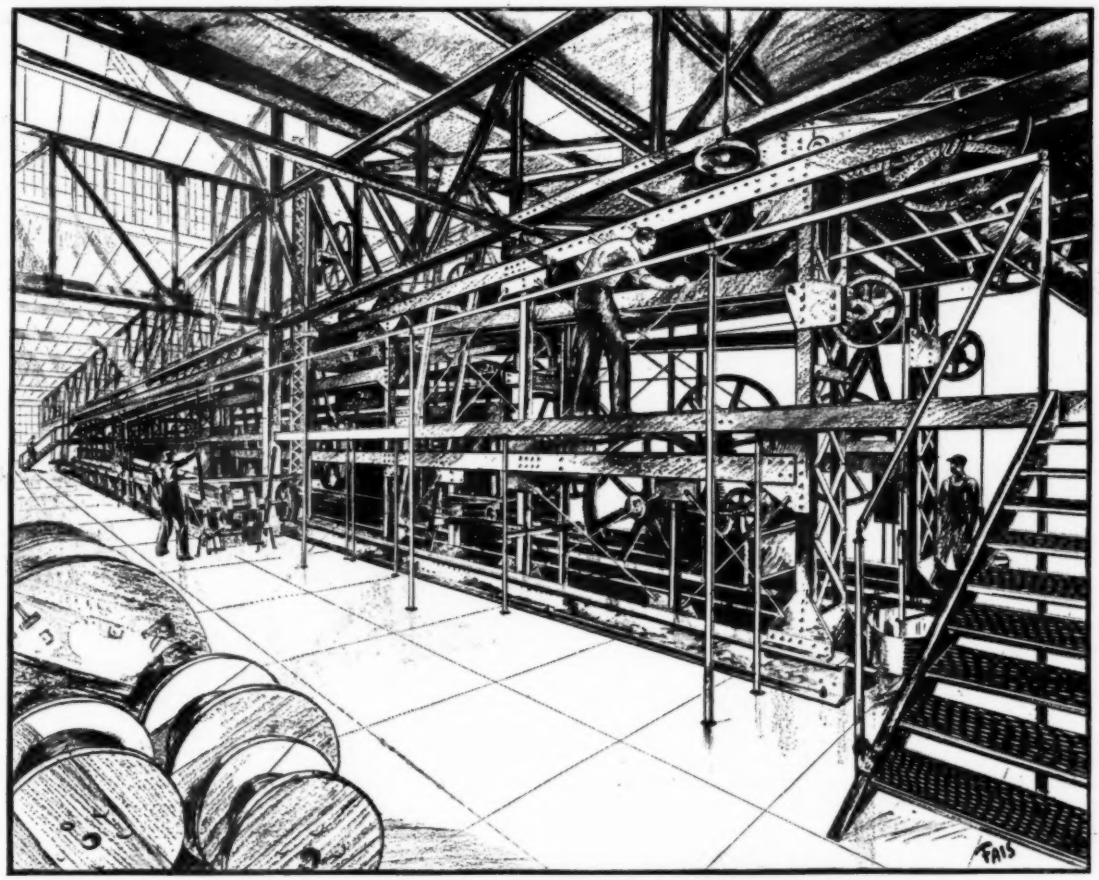

*No. 14 of a series of advertisements on "How Superlative Quality is Built into Roebling Wire Rope". Illustrated is the world's largest and most highly developed wire rope fatigue testing machine.*

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In its determination to make wire rope of utmost stamina, safety and service economy, Roebling has explored every possibility of developing and improving this product. Regardless of cost, full advantage has been taken of every opportunity.

Not content to stop with the finest of production and routine testing facilities, Roebling has supplemented these with the most advanced research equipment and an extensive program of wire rope performance study in both the field and the laboratory.

Shown above, for example, is the world's largest wire rope fatigue machine, developed by Roebling exclusively for their own study of rope characteristics. With this machine is carried on a never-ending search into the wearing and fatigue qualities of wire rope under various bending and tension conditions.

One of several similar fatigue machines built by Roebling at various times, the unit illustrated is not only the largest and most elaborate in existence but is by far the most highly developed. It represents years of experimenting and refining, and an investment of many thousands of dollars.

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**ROEBLING** "BLUE CENTER" STEEL **WIRE ROPE**

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## Shots From the Firing Line — *Continued*

highway department finds will be available in addition to the regular program. This $4,000,000 represents a saving in the reduced price of materials and the difference between the State Engineers estimates and the contractors bids during the past year.

**The Continental Construction Corporation,** Chicago, is acquiring right-of-way and making other necessary arrangements for the construction of branch pipe-lines 170 miles long to supply Northern Illinois cities and Milwaukee with natural gas from Texas. The line will start at a point near Geneseo, Illinois.

**Badgett Construction Company** has started work on their revetment job near Cape Girardeau, on the Missippi River. They have just finished a revetment job at Neely's Landing.

**The J. A. Tobin Construction Company** has contract for the grading and paving of 9.24 miles of highway in Jackson county. Dan Scherrer is doing the grading.

**Thomson & Penny** were awarded contract by the Jackson County Court for paving 1¼ miles of road near Kansas City.

**The Independent Quarry & Construction** Company were awarded contract for paving 2215 feet on Lafayette Avenue in St. Louis County.

On their low bid of $66,922 **Keely Bros. Construction Company** were awarded contract to pave Lackland Road from St. Charles road to Marion Avenue a distance of 2.1 miles.

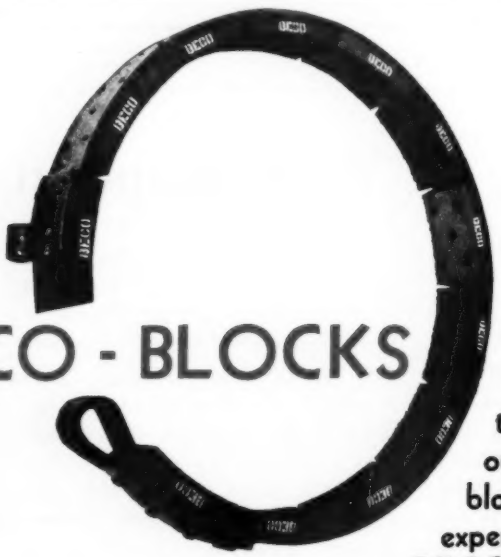
**Martin Wunderlich Company** has moved their office from Minneapolis to 219 East High street, Jefferson City, Mo. Welcome to Missouri.

**Three contracts** invalidated by the recent decision of the Illinois State Supreme Court that the prevailing wage law is unconstitutional, were **relet by the Sangmon county court** to the original contractors. The total cost of the three contracts is $135,981. The contracts were awarded on the following bids; Rochester-Buckhart road to **Hurden Construction Company.** Bridge over Buckhart Creek to **Sangmon Construction Company.** North Grand Road to **Hurden Construction Company.** The two road bids were the same as the original bids but the bridge bid was $559,000 above the original bid account of changes in design. There were no other bids on these projects.

**Woods Brothers Construction Company** was awarded contract at Kansas City for 9,865 feet of clump pile dikes and 3,000 linear feet of standard revetment at McGirk's Island and Hermann reaches, in the Mississippi River.

**W. A. Ross Construction Company** was low bidder for the construction of 5,120 linear feet of standard clump pile dikes and 2,100 linear feet of standard revetment at Malta Bend on the Mississippi River. The bid was $184,926.

**C. H. Atkinson Paving Company** of Watertown, South Dakota use their Bucyrus-Erie 32-B clamshell for unloading material for concrete pavement at Diamond, Missouri. The above illustration shows this machine in action. E. C. Atkinson is Superintendent on this job.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BUCYRUS ERIE

For your convenience in writing to Bucyrus-Erie Co. you will find a card bound in this issue.

**The Missouri State Highway Commission** is taking bids on eighty highway projects approximately $3,500,000. Letting December 4th.

**The St. Louis office of the U. S. Engineers** will receive bids until December 2nd for placing about 128,000 cubic yards of earth work by hydraulic methods to rebuild and enlarge the levee of the Lost Creek Drainage and Levee District of Cass County, Illinois. This work on the Illinois River is in the City of Beardstown and connects with the City of Beardstown levee on the southeast side of Meyer's Pond. The source of material is in hydraulic borrow pits in Meyer's Pond and Muscooten Bay, also in material on the existing levee. Completion is required in 180 calendar days.

## Arkansas Notes

By JOE LYONS

**Altman-Rodgers Company**, Little Rock, Contractors are using their Bucyrus-Erie 32-B gasoline clamshell machine for loading paving materials near Lillie, Louisiana. In the above picture the 32-B is loading to a Erie Aggremeter.

## River Notes

Grading the banks of the Mississippi near Keys, Tennessee we see above a Bucyrus-Erie Class 230 dragline, barge mounted. This work is being done by the **Memphis District**

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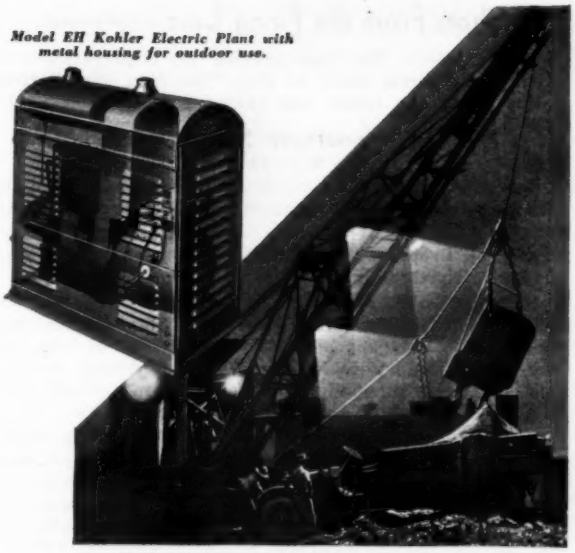

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## Shots From the Firing Line — *Continued*

U. S. Engineers. This bank grading job is preparatory to laying of concrete mats to stop "Old Man River" from eating away the banks and changing his channel.

### Southern Notes

By R. S. WELFER

George H. Fisher, Lenoir City, Tenessee, has started the paving project on the Ringgold Road just out of Chattanooga.

Jamison Brothers, Nashville, have completed their work at Elkin, North Carolina.

Nello L. Teer, Durham, North Carolina, subbed the Atlanta Post Office foundation excavating from the National Construction Company of Washington, D. C. In turn, Mr. Teer sublet the dry excavation to W. J. Redmond, Atlanta, who is running three, eight-hour shifts with his Lorain 75, hauling by trucks to a dump some distance away.

It is reported that Brooks-Callaway are making exceptionally good progress on their U. S. Government levee contract on the Mississippi River, located near Lake Cormorant, Mississippi, and anticipate completing same not later than the first of February, 1932. The contract time on this job expires about the middle of October, 1932.

It is reported that J. J. McCaughey and States Contracting Company were low bidders at the New Orleans levee letting in September, subbing approximately two million cubic yards of their work to the Arundel Corporation of Baltimore. We understand the Arundel Corporation will handle this contract with two large draglines.

The Georgia State Highway Department called for bids November 17. They also expect to receive bids December 15. Only a small amount of grading was represented on the first letting, but the second one will have a number of attractive grading jobs.

Bell & Bell, Nashville, have their winter work laid out ahead of them in the form of six miles of heavy grading in Van Buren County.

Henry Construction Company, Greenville, South Carolina, is paving near Bascomville.

By W. W. WHORLEY

Peterson & Simmons of Birmingham, are busily at work with their Bucyrus-Erie 42-B shovel widening and deepening Valley Creek for the City of Birmingham. They are using Link-Belt draglines to strip the clay off of the rock and casting to either side. After the rock has been drilled and shot the 42-B is used to excavate the blasted rock and loads it into skip pans handled by the Link-Belt machines which deposit the material on either bank. John Roberts is operating the levers of the 42-B shovel.

### Colorado Notes

By H. N. STEINBARGER

Hamilton and Gleason Company was recently awarded contract for a 4.062 mile section on U. S. Highway 40-S between Manitou and Cascade. Known as Federal Aid Project No. 158-A, Division 1, this will require 200,500 cubic yards of unclassified and common excavation, 1,600 yards dry rock, 1,400 yards wet excavation, mostly rock and 5,970 cubic yards of rip rap. Contract involves 452,000 station yards of overhaul and also includes corrugated metal culverts and 17,300 feet of wire cable guard fence. The work must be completed by April 1st, 1932 so work will be pushed through as rapidly as possible this fall. Hamilton and Gleason Company is putting Bucyrus-Erie 30-B and 50-B steamers and a Lorain 75 on the job.

Many of our readers who have toured in Colorado are familiar with this stretch of highway which starts at the famous Big Ute Spring and leads up along the historic old trail through Ute Pass west of Colorado Springs. It goes past the beautiful Rainbow Falls and reaches the high plateaus of South Park. The famous Pikes Peak highway branches off near the Rainbow Falls. The new road will be thirty-six feet wide with the steepest grade only seven per cent. It will serve Cascade, Florissant, and connect with the Denver-Fairplay road to Buena Vista, Leadville and Salida.

By H. M. BIBAUD

State Highway Engineer Cheney's office, Durango, announces that bids will be called for on the seventeenth of November for two miles of rock work on the Wolf Creek Pass road. This will be a good sized job and it is expected that work will start as soon as the contract is let and will continue through the winter. It is not expected that any other job will be let in this highway district this year.

The grading and graveling of the highway between La Jara and Alamosa is near completion.

Gravel from Loomis pit is being used to gravel Highway No. 40 on the oiled road extending from Deer Trail to Agate.

Survey has been made recently for a connecting unit between Rifle and South Canyon. This will afford when completed, a continuous gravel surfaced road from Grand Junction to Glenwood Springs.

Wood, Morgan and Burnett have completed their five-mile highway construction contract on Yellow Jacket and are moving their machinery, equipment and horses to Durango. The stretch of road just finished by the above named contractors, is said by engineers to be one of the finest jobs of its kind in the southwest. The new highway eliminates a fraction over five miles of sharp dangerous curves and steep grades between Bayfield and Pagosa Spring, and removes one of the last really bad stretches of highway between Durango and Pagosa during stormy weather.

A petition was presented to the Durango City Council at its regular meeting November 3rd asking for the paving of certain districts in the city. Action awaits checking up the petition signatures to determine percentage of property owners, fifty-one per cent percentage of owners being required for further action.

Three new snow plows have been received by the maintenance department of the State Highway for use in the Durango district. One of the plows which has been mounted on a big 75 Monarch tractor will be used in the vicinity of Durango. One is being mounted on a Bates 35 Caterpillar for use in the Lime Creek section, and the third will be mounted on a Monarch 50 tractor for use in the Silverton area. Gene Kaune of the H. W. Moore Equipment Company has been in Durango assembling the snow plows and assisting in mounting them on the tractors.

Fire of claimed incendiary origin destroyed between $4,000 and $5,000 worth of machinery and equipment owned by the Shields Construction Company, at Hesperus, La Plata County, on November 8th. The fire, when discovered had made great headway and nothing could be done to save the structure in which the equipment was stored. The building was located about 100 feet from the new bridge

## Shots From the Firing Line — *Continued*

across the La Plata River in Hesperus. Machinery and equipment destroyed include repair parts for trucks and tractors, tractors, trucks, tires, acetylene tank, an electric light plant, and a large quantity of gasoline and oil. During the fire two heavy explosions occurred. Two tents, in which company employees were sleeping were destroyed by the fire, the occupants barely escaping with their lives.

### Pacific Northwest Notes

By MARC D. TROYER

**S. H. Newell and Company**, Portland, are encountering a great deal of rock work on their Santiam highway job near Sisters, Oregon. They state that the heavy rock digging is being successfully handled by their 50-B and E-2 Diesel machines. When completed, Santiam highway will make a direct route from Portland to Bend by way of Salem, Oregon, cutting the distance down to 150 miles.

F. W. Robard is General Superintendent and Joe McCormick, Nick Holihan, Charles Last and Joe Brown are operating the machines. The accompanying views of the 50-B and the E-2 perched on the mountainside shows the shovel digging and loading.

### San Francisco and Vicinity

By H. L. LIVINGSTON

**J. L. Conner of Monterey**, was awarded the contract for grading Grizzly Peak Road from Fish Ranch to the Skyline Boulevard in Alameda County. This project involves 177,000 cubic yards of roadway excavation. Mr. Conner's bid price for this work was 17c a yard.

**Morrison-Knudsen Company**, Boise, Idaho, was low bidder to the Bureau of Public Roads, San Francisco, in the amount of $54,913.00 for grading section B in the Gulch Forest Highway, Modoc National Forest of California. 130,000 yards.

**A bond election will be held** in the near future by the Silver Creek Municipal Utility District, City Hall, Sacramento to vote on issuing bonds in the amount of $10,800,000.00 for the construction of work for a mountain water supply system for the city of Sacramento. Work involves in the main: Union Valley Dam—to be rockfilled type, 235 ft. high and 820 ft. long. Ice House Dam—concrete construction, 60 ft. high and 220 ft. long. Pipe Lines —60 miles in length—mostly steel, 63" to 45" diameter. Sweet Water Creek—equalizing reservoir—to be rockfilled type, capacity of 3,000 acre feet. A. Givan, City Hall, Sacramento, Chief Engineer.

**Granfield, Farrar & Carlin** of San Francisco have been awarded the contract by the Bureau of Public Roads, San Francisco, for grading 8½ miles of Section A1, Route 5, Yosemite National Park. This job includes 333,000 yards

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27 years' experience on shovels throughout North America and Central America. Willing to accept any reasonable offer. Can do own repair work and furnish A-1 government and private recommendations. Present location, Ohio. Box 2007.

**DRAGLINE-CLAMSHELL-SHOVEL OPERATOR**

10 years' experience on Bucyrus-Erie gasoline machines on highway grading and materials handling. Willing to go anywhere in U. S. A. Married. Can do own repair work and furnish A-1 references. Present location, Illinois. Box 1901.

**DREDGE ENGINEER-SHOVEL OPERATOR**

20 years' experience on all types of excavating, drainage, stripping and pit work. Will go anywhere in U. S. A. Excellent repairman. Can furnish reliable references. Married. Present location, Indiana. Box 1902.

**SHOVEL OPERATOR**

Experienced on Diesel shovels on general highway work and on logging railroads. Single. Can do own repair work. Willing to go anywhere in U. S. A. Present location State of Washington. Box 2008.

**DRAGLINE-CRANE-SHOVEL OPERATOR**

10 years' experience on Gas+Air, gasoline and steam draglines, cranes and shovels. Above experience includes years spent on highway grading, basement excavation, drainage and coal stripping work. Prefer operating a Bucyrus-Erie shovel anywhere in country. Can do own repair work. A-1 references furnished. Single. Present location, Pa. Box 2102

**SHOVEL OPERATOR**

Fully experienced on Bucyrus-Erie, Lorain, Osgood and Northwest steam and gas shovels. Willing to go anywhere in U. S. A. at once on any kind of construction work. Reliable references furnished. Present location, West Virginia. Box 2104

**DRAGLINE-CRANE-SHOVEL OPERATOR**

Experience covers 15 years on highway grading, coal mine and quarry pit work. Willing to go anywhere in U. S. A. Married. Can do own repair work and furnish excellent references. Present location, Iowa. Box 2001.

**SHOVEL OPERATOR**

Fully experienced on Gas+Air, gasoline, and steam machines on general all around grading and excavating. Would go anywhere in U. S. A. Married. Can handle own repair work. A-1 references. Present location in West Virginia. Box 2002.

**DRAGLINE-CLAMSHELL-SHOVEL OPERATOR**

Twenty years' experience on Diesel, gasoline, and steam machines on highway and railroad grading and on levee work. Willing to go anywhere in U. S. A. Married. Own repairman. Reliable references. Present location, Indiana. Box 2003.

**DRAGLINE-CRANE-SHOVEL OPERATOR**

13 years' experience on Bucyrus-Erie Gas+Air, electric, gasoline and steam machines on all types of excavating. Willing to go anywhere in U. S. A. Married. Can do own repairing. A-1 references. Present location, Indiana. Box 2004.

**DRAGLINE-CRANE-SHOVEL OPERATOR**

22 years' experience on Gas+Air, steam, gasoline, electric and Diesel machines on levee, drainage, highway and general excavating. Will go anywhere. Capable of handling all repair work. First class references. Present location, New York. Box 2005.

**DRAGLINE-SHOVEL-CRANE OPERATOR**

Experience covers years on drainage, quarry, highway grading and mine stripping. Prefer dragline or shovel work anywhere in middle west. Can do own repair work and furnish good references. Married. Present location, South Dakota. Box 2103

**DRAGLINE OPERATOR**

11 years' experience on steam and Diesel machines. Excellent repair man. Would prefer operating a Bucyrus-Erie 50-B anywhere. Can furnish reliable references. Present location, New York. Box 2101

## Shots From the Firing Line — *Continued*

of roadway excavation and the amount of the contract was $290,272.00. This was the second call for bids on this particular job as the Lang Construction Company of Los Angeles, who was the original low bidder on this job, made a mistake in their figures and all bids were thrown out, and readvertised.

**Healy-Tibbitts Construction Company** of San Francisco was low bidder to the California Division of Highways for 10.9 miles of grading and surfacing in San Bernardino County. The amount of their bid was $321,514.00. The excavation on this job amounts to 613,000 cubic yards, which will be moved by the J. P. Holland Company of San Francisco. This company is making arrangements to move their equipment to this job at the present time.

**Bids were received** November 25 by the California Division of Highways for six miles of grading and paving in Santa Barbara County. This work comprises 255,000 yards roadway excavation and 2,100,000 station yards overhaul.

**M. J. Bevanda,** Stockton, celebrated his return from a one-year's vacation in Europe by being low bidder on 9.7 miles of grading in Santa Barbara County, involving 302,000 yards of roadway excavation. Mr. Bevanda will move most of this material by scrapers and will do the finishing work with his two Northwest shovels.

**After January 1, 1932, it will be obligatory** for California contractors, bidding on State highway work, to do 100% of the work covered by the bid without the aid of subcontractors. It is generally felt that this will help the contractors who are financially responsible and will result in an increased price for highway work, inasmuch as the irresponsible contractor with no resources will be eliminated from highway jobs.

### ANDREW J. WILEY

Andrew J. Wiley, internationally known engineer, was stricken with a ftal attack of cerebral hemorrhage while serving as consulting engineer for the Metropolitan Water District's $220,000,000 Colorado river aqueduct project. Funeral services for Mr. Wiley were held in his home at Boise, Idaho. He was taken ill October 14th while inspecting the flood control dam in San Gabriel canyon. Mr. Wiley had superintended the building of many of the large irrigation and dam projects in the West. He had served with the United States interior department as consulting engineer on dam designs since 1925.

### MRS. HELEN HOLLAND

Mrs. Helen Holland, for more than twenty years an executive of the contracting firm of J. P. Holland, died October 24th from a heart attack. She had been active in her duties until October 17th. Mrs. Holland was born in Gilroy, fifty-three years ago. As Miss Helen Whelan, she was married to Mr. Holland thirty-seven years ago and made San Francisco her home. There are four children, Mrs. Caroline Walker, Mrs. Theresa Shahan, Mrs. Helen Winckelmann and J. P. Holland, Jr. After her children were grown, Mrs. Holland assumed some of the details of management of her husband's business, and gained fame as one of the few women to possess executive knowledge of such an enterprise.

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**P&H MODEL 600. New 1929.** 20-foot shovel boom, 14-foot 3-inch Dipper handle, 1-yard Dipper. Also 40-foot boom Clamshell-Dragline Equipment. Waukesha 75 H.P. Engine. Located Arkansas. Price subject purchaser's inspection, f.o.b. present location $6,000. Box 218-SS.

**NORTHWEST MODEL 104** 1¼-cubic-yard gasoline shovel, also 40-foot dragline boom. Located near Seattle, Washington. Box 173-SS.

**LORAIN 55** Gasoline one cu. yd. Shovel, new April 1929. Excellent condition. Located near Pottsville, Pennsylvania. Box 270-SS.

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**NORTHWEST SHOVEL,** model 105, caterpillar mounted. 24-foot boom, 1-cubic-yard dipper, 16-foot dipper handle. In good condition. Price $4,500, f. o. b. Utica, New York. Box 34-SS.

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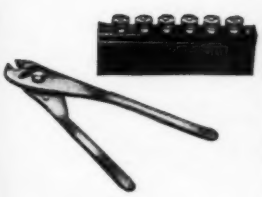

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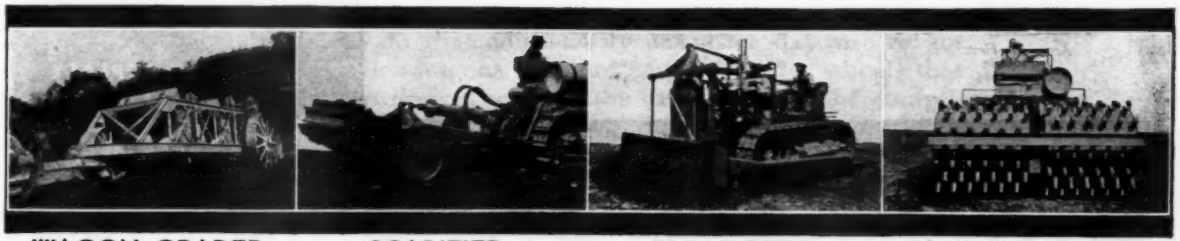

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**NOT a trick stunt, but a normal operation: Two Trackson Crawler Wagons, hitched together and loaded to full 16-yard capacity, making the round trip from shovel to dump with the "Cat 60" running in high gear all the way. To do that consistently day after day you've got to have crawler wagons that run easy—crawler wheels that are simple in design, without the drag and wear of complicated parts; wheels that can be kept easy-running by quick and easy adjustment; wheels that will *stay* easy-running because their vital parts can readily be renewed in the field. Plan now to put Trackson Wagons on your next job so that you can haul full loads at top speed and lowest cost. Plan now, at least to replace your present worn wheels with Trackson Wheels and be through wasting power on needless weight and drag. Trackson Crawler Wheels *stay* easy-running.**
**TRACKSON COMPANY, 1330 S. First St., Milwaukee, Wis.**

# TRACKSON
## CRAWLER WAGONS

In writing to Trackson Company please use post card bound in the center of this number.

# LINN PACKS A PUNCH AND A PULL

LINN TRACTOR No. 4 *hauling a full pay load of wet gravel out of the Butternut Creek Stream Bed and over a steep, muddy river bank. Weight of gravel—3,240 lbs. per cubic yard.*

LINN TRACTORS

Patent No. 1,270,531
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Patent No. 1,685,641
Patent No. 1,685,676
Patent No. 1,701,979
Patent No. 1,809,344
Other Patents Pending

Only LINN has patented flexible traction. Wide sturdy tracks provide a greater tractive grip that adapts itself to hump or hollow . . . enables LINN to march through mud, sand or rocky terrain that stops ordinary hauling equipment.

more YDS. PER DAY

**Month in and month out, in spite of adverse weather and ground conditions, the sturdy LINN stays on the job. Makes more money for you per load than the ordinary vehicle. Cuts cost of replacement and maintenance to the minimum. Whatever your problem, you can bank on LINN for dependable and economical transportation.**

**Write or wire for Nielsen Certified Surveys—Unbiased facts and figures of performance in all classes of work.**

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In writing to Linn Manufacturing Corp. please use post card bound in the center of this number.

# FOR SALE

## Address all box numbers c/o The Excavating Engineer at South Milwaukee, Wisconsin

### Small Shovels
*Under 2 yards*
Continued

**TYPE "B" ERIE STEAM SHOVEL,** caterpillar mounted equipped with 21-foot 3-inch boom, 18-foot 6-inch dipper handle, power boom hoist, ¾-cubic-yard dipper; in excellent condition; just installed $400 worth of repairs. Located vicinity Kansas City. Box 80-SS.

**ERIE TYPE "GA-2" GAS+AIR SHOVEL,** shop number 4117, mounted on spur gear drive caterpillar trucks, and equipped with a 24-foot boom; 18-foot, 4-inch dipper handle; 1-cubic-yard manganese cast front socket inserted tooth dipper; power boom hoist; air self-starter, and all equipment and appurtenances in accordance with the specifications of the Bucyrus-Erie Company, f.o.b. cars shipping point Virginia. Box 126-SS.

**RECONDITIONED BUCYRUS-ERIE DEISEL-AIR SHOVEL.** 22' boom, 16' Dipper Handle. 1¼ cu. yd. Dipper. Single shaft "Cat". Atlas 4 cyl. engine 6¼"x8". Located Portland, Oregon. Box 274-SS.

**PRACTICALLY NEW GASOLINE OPERATED 50-FT. BOOM DRAGLINE.** Will handle 1½ cu. yd. Bucket. Also available, Brand New Rope or Chain Crowd Shovel Equipment. Factory inspected. Carried new machine guarantee. Available about 10 days. Box 275-SS.

**TYPE "B" ERIE STEAM SHOVEL,** caterpillar mounted, equipped with 21-foot boom, 18-foot dipper handle, boom hoist, ¾-cubic-yard dipper; sold new 1924; just completely overhauled; priced reasonably at $1,400. Located vicinity of Chicago. Box 41-SS.

**MARION MODEL 37 ELECTRIC SHOVEL** suitable for 3-phase, 60-cycle, 440 volts, equipped with 32-foot boom, 22-foot handles, and 1¼-cubic-yard dipper, on caterpillar mounting. Machine in very good condition. Located near Pittsburg, Kansas. Price reasonable. Box 90-SS.

**BUCYRUS-ERIE TYPE D-2 DIESEL DRAGLINE,** shop number 5055, 45-foot boom and 1-cubic-yard Page Class "M" drag bucket. Located Eastern Missouri. Priced to sell. Box 166-SS.

**USED NORTHWEST SHOVEL,** 24-foot boom, 15-foot dipper handle, 1-cubic-yard dipper, equipped with 4-cylinder, 6¼ in. x 8¾ in., Atlas Diesel Engine. Good operating condition. Located San Francisco. Price right. Box 135-SS.

**MONIGHAN DRAGLINE** 60' Boom, 1¼ yd. Page DL Bucket. Rebuilt 1927 and equipped with 1½-W type Walking Device and Waukesha 5¾x8" WS 4-cyl. Gasoline Engine. Machine reported excellent operating condition. Located Crow Creek, Arkansas. Box 247-SS.

**USED BUCYRUS TYPE 18-B** ⅞-yd. steam shovel mounted on traction wheels. Located Southern Wisconsin. Bargain. Box 259-SS.

**USED BUCYRUS TYPE 30-B STEAM SHOVEL;** caterpillar mounted; 26' boom and 3' extension. 19' dipper handle, 1-yd. rock dipper, and boom hoist. Located Chicago vicinity. Box 260-SS.

**BRAND NEW BUCYRUS-ERIE GA-2 SHOVEL.** 22-foot 6-inch boom, 16-foot Dipper Handle, 1¼-cubic-yard Inserted Tooth Dipper, 6¼-inch x8-inch Waukesha Engine, Air-cooled Compressor, Air Starter. Machines used for demmonstration purposes only. Carries full new machine guarantee. Priced to sell. Box 219-SS.

**MARION MODEL 21 AC-DC** electric shovel. Shop number about 5500. 20-foot boom, 15-foot dipper handle, ¾-cubic-yard dipper. Suitable to operate on power supply 3-phase 60-cycle 220 or 440 volt. First class condition. Located vicinity New York City. Box 208-SS

**20-B GAS COMBINATION SHOVEL AND DRAGLINE** (not including bucket). Shop number 4316. Located New Mexico. Price $4,000. Box No. 203-SS.

**P&H MODEL 204.** Shop number above 2200, combination Shovel Clamshell. 19' shovel boom, 14'6" dipper handle, ½ cubic yard dipper, 35' clamshell boom, ½ cubic yard Owens Type M digger type bucket. Both front end equipments less than one year old. Machine excellent condition. Located vicinity of Chicago. Box 254-SS.

**TYPE "B" ERIE STEAM SHOVEL,** caterpillar mounted, 19-foot 9-inch boom; 16-foot dipper handle, ¾-yard dipper, boom hoist. New 1924. Excellent condition; new flues in boiler last season; did no work last year. Located near Chicago. Priced to sell. Box 157-SS.

**USED 30-B DIESEL SHOVEL**—25'9" Boom, 14' Dipper Handle, including Dragline Equipment. Located Limerock. Florida. Box 251-SS.

**MARION MODEL 32** 1½-yd. steam shovel; new 1928; caterpillar mounted; 27-ft. shovel boom and 3 sets dipper handles (17'6", 24' and 28'), 1 yd. dipper; 40' channel boom for clamshell and dragline; also equipped for sewer work. Located Chicago vicinity. Priced to sell. Box 257-SS.

**BUCYRUS-ERIE GASOLINE OPERATED** 1½-yard rope crowd shovel. Used only 60 days. Thoroughly inspected. Sold with new machine guarantee. Box 246-SS.

**USED BUCYRUS TYPE 30-B STEAM COMBINATION EXTRA HIGH LIFT SHOVEL,** Clamshell, Dragline, also Sewer Dipper Handle; caterpillar mounted; machine shipped new in 1923. In very excellent condition; has not been used very much, and has been well kept up. Located Chicago vicinity. Box 258-SS.

**ONE REBUILT B-2 standard steam shovel,** power boom hoist, new style "Cats." Factory guaranteed. Box 252-SS.

**20-B BUCYRUS STEAM SHOVEL,** shop number 3743, caterpillar mounted, 20-foot 6-inch boom, 15-foot dipper handle, ¾-cubic-yard dipper. Located near Chicago. Priced to sell. Box 210-SS.

**ONE OSGOOD STEAM CRANE,** 40' boom, located New York. Priced to sell. Box 248-SS.

**If You Do Not Find What You Want Listed—Write Us**
**The Excavating Engineer**
**South Milwaukee, Wis.**

**TYPE "O" THEW STEAM SHOVEL** on caterpillars, shop number 2246; good working condition, located West Virginia. Price $1500. Box 239-SS.

**ONE P. & H.-400 ¾-CUBIC-YARD GAS SHOVEL**—shop number about 3650, equipped with oversize motor and reinforced boom. Machine is 1½ years old, and has seen very little service. Located in Southern Wisconsin. Box 98-SS.

**ONE P&H MODEL 208,** 45' boom, dragline (no bucket). "Cats" 15½' long, 9' wide, 22" treads, 100 H.P. Waukesha High Altitude Engine. Located, Colorado. Box 249-SS.

**FOR SALE—AMERICAN STEAM DITCHER,** equipped with ¾-cubic-yard bucket, mounted on flange wheels for off the car service and including caterpillar mounting. Machine in excellent mechanical condition. Located in Southeastern Arkansas. Box 159-SS.

**RECONDITIONED TYPE-A ERIE STEAM SHOVEL** on caterpillars, ⅝-cubic-yard dipper, 16-foot boom, 13-foot dipper handle, boom hoist, Massachusetts boiler. Machine thoroughly inspected, worn parts replaced. Guaranteed to be in first-class operating condition. Will rent or sell. Box 37-SS.

**TYPE E-2 DIESEL DRAGLINE,** caterpillar mounted with 30-inch treads; 4-cylinder 8" x 10½" Atlas Diesel engine. Machine originally shipped in October 1929 and is in excellent condition. May be inspected. Working daily. Located near Vincennes, Ind. Shop number about 10450. Box 224-SS.

**TYPE "A" ERIE STEAM SHOVEL,** shop number about 1900, caterpillar mounted, 16-foot boom, 14-foot dipper handle, ⅝-cubic-yard dipper, boom hoist. In first-class condition. Located Chicago vicinity. Priced to sell. Box 69-SS.

**USED B-2-ERIE STEAM SHOVEL,** 19-foot 9-inch boom, 16-foot dipper handle, ¾-cubic-yard dipper, "cat" mounted, mass boiler, low clearance, wood cab, armored rear end. Located Boston. Good operating condition. Priced right. Box 206-SS

**TWO TYPE "B" ERIE STEAM MACHINES,** mounted on "cats," ¾-cubic-yard dippers, shop numbers 2300 and 2301, 19-foot booms and 16-foot dipper handles. Box 83-SS.

**HIGH LIFT ERIE "DREADNAUGHT" STEAM SHOVEL** with caterpillar type traction, 19' 9" boom, 16' dipper handle, ⅞ cu. yd. dipper. Bought new in 1926. In first class usable condition at Portsmouth, Ohio. Write Box 262-SS.

### Small Draglines
*Under 2 yards*

**USED TYPE 31-B BUCYRUS STEAM DRAGLINE-Clamshell Machine,** shipped new Nov. 1926; "Cat" Mounted; equipped with 40-ft. boom. Located Chicago vicinity. Good running condition. Bargain. Box 256-SD.

**30-B DIESEL DRAGLINE** with 40-foot boom and 1-cubic-yard bucket located in Alabama. Box 91-SD.

**WANTED TO BUY**
**GOOD USED DRAGLINE ATTACHMENT** complete with bucket for converting Gas+ Air shovel. Address Box 169-SD.

**30-B BUCYRUS COMBINATION STEAM DRAGLINE** extra high lift shovel and clamshell. Also sewer dipper handle. Mounted on "cats." Machine shipped new 1923. In excellent condition; has not been used much. Located Chicago vicinity. Box 258-SD.

**OSGOOD GASOLINE DRAGLINE,** 1¼-cubic-yard bucket, 22-foot boom, 16-foot dipper handle, manganese front dipper, 4-cylinder Le Roi motor, 125 h.p., 45-foot boom, fairlead, no bucket. $6000. For further particulars address communications to Box 115-SD.

**FOR SALE OR RENT**
One practically new Bucyrus-Erie Model E-2 Dragline, Diesel driven, equipped with 50' boom and 1½-yard Omaha dragline bucket, now located at Shenandoah, Iowa. Box 244-SD.

**MODEL "M" NORTHWEST DRAGLINE,** shop number 1587, 45-foot boom, 1¼-cubic-yard drag bucket. In fair operating condition. Located Central Illinois. Priced to sell. Box 168-SD.

**P & H MODEL 700 DRAGLINE;** number 2894 equipped with a 50-foot boom, light 1½-cubic-yard drag bucket, electric light plant, and powered with 4-cylinder Atlas Diesel engine. About 2½ years old. Box 189-SD.

**BUCYRUS 30-B STEAM DRAGLINE,** shop number about 4470, mounted on caterpillars with 40-foot boom and 5-foot extension. 1-cubic-yard Page class-C bucket and electric light plant. Good working condition, location, Detroit District, and ready for prompt delivery. Box 121-SD.

# FOR SALE

## Address all box numbers c/o The Excavating Engineer at South Milwaukee, Wisconsin

### Small Draglines

*Under 2 yards*
Continued

**NORTHWEST DRAGLINE,** Model 105, shop number in 2000's; 45-foot boom, fairlead and no bucket. In good condition, $5,000.00. For further particulars address communications to Box 114-SD.

**NORTHWEST MODEL 104 GASOLINE DRAGLINE,** equipped with 40-foot boom, also 26-foot shovel boom. Good operating condition. Located Seattle, Washington. Box 173-SD.

**BUCYRUS 20-B COMBINATION GAS DRAGLINE AND SHOVEL** (not including bucket). Shop number 4316. Located southwestern United States. Price $4,000. Box 203-SD.

**P & H DRAGLINE MODEL 700;** number 2456 equipped with a 50-foot boom, light 1½-cubic-yard drag bucket, electric light plant, and powered with a Waukesha gasoline engine. About 2½ years old. Box 190-SD.

### Small Clamshells and Cranes

*Under 2 yards*

**BUCYRUS 20-B STEAM COMBINATION CLAMSHELL** extra high lift shovel and dragline. "Cat" mounted. Also sewer dipper handle. Machine shipped new in 1923. In excellent condition, well kept up and has not been used very much. Located vicinity Chicago. Box 258-SCC.

**BYERS GASOLINE ONE-HALF SWING, 30-FOOT BOOM CLAMSHELL EXCAVATOR,** including ½-cubic-yard Williams clamshell bucket and trench hoe equipment, powered with Hercules motor. Machine about 4½ years old. Price complete, machine f.o.b. present location vicinity Buffalo, New York, $2,500.00. Box 66-SCC.

**REBUILT GA-2 ERIE,** 40 or 45-foot boom clamshell, mounted on new single shaft caterpillar. Starter. Carries guarantee of new machine. Box 43-SCC.

**RECONDITIONED TYPE B ERIE** 36-foot boom clamshell, caterpillar-mounted, shop number approximately 3100. Guaranteed. Will rent with option of purchase. Located Western Pennsylvania. Price on application. Box 40-SCC.

**O. & S. STEAM LOCOMOTIVE CRANE,** shop number about 48200, 22-ton capacity, 45-foot box-type boom, 1½ yd. Williams "Rehandler" clamshell bucket; complete, in good working condition. Price, $4500. f.o.b. near Sioux Falls, S. Dakota. Box 277-SCC.

**BROWNING STEAM LOCOMOTIVE CRANE** (20-ton capacity). 42-foot boom, 1¼ yd. clamshell bucket. Boiler 43"x96". R. R. truck mounting. Shop No. about 1850. Located Chicago. Bargain. Box 278-SCC.

### Large Shovels and Draglines

*2 yards and over*

**BUCYRUS 80-B STEAM SHOVEL,** shop number about 3800; 2-cubic-yard dipper; 48-foot boom; 32-foot dipper handle. "Cat" mounted. Priced to sell. F.o.b. cars. Box 255-LSD.

**BELGIAN FIRM WITH LARGE WORKS**
wishes to represent an American factory of material for mines and quarries on the European and colonial market where it is very well introduced and has 40 active agents.
**MESSRS. APPAREILS & BREVETS DERIHON**
Rue du Moulin 316. Bressoux lez Liege.

**MONIGHAN DRAGLINE MODEL 2-W,** Shop number 501. Equipped with 60-foot boom, 2-yard bucket. Machine only one year old and in excellent condition. Located near St. Louis. Price $16,000. Box 236-LSD.

**50-B STEAM SHOVEL,** Number 3946; equipped with 1½-cubic-yard dipper, 26-foot boom, also 1½-cubic-yard dragline bucket with 50-foot boom caterpillar mounted, equipped for burning oil, located at Texarkana, Ark. Price very reasonable. Box 112-LSD.

### For Sale or Rent

**ONE CLASS-14 STEAM DRAGLINE** excavator Number 3402, 70-foot boom, 2-cubic-yard bucket, caterpillar mounted, equipped for burning gas or oil. Priced very reasonable. Located at Grand Prairie, Texas. Box 110-LSD.

**50-B BUCYRUS-ERIE ELECTRIC SHOVEL,** equipped with 3 phase A. C. current, 550 volts, 60 cycles and has three motors. New Manganese steel dipper. Located South Carolina. Box 226-LSD.

**1 70-C BUCYRUS, 2½ or 3-yard dipper, on caterpillars. Steam. Box 183-LSD.**

**FOR SALE**
**Marion Electric 350 on trucks, Ward-Leonard Control equipped with 8-yard bucket, 90-foot boom, 54-foot dipper stick, new in 1924. Located in Central States. Box 276-LSD.**

**MARION MODEL 36 STEAM STRIPPING SHOVEL,** shop number about 4100, 30-foot boom, 18-foot 6-inch dipper handle, 2-cubic-yard dipper, caterpillar mounted. Located near Isabel, South Dakota. Approximately $2000.00 worth of spare parts included. Immediately available. Priced to sell. Box 233-LSD.

**50-B STEAM DRAGLINE,** shop number about 4157, mounted on caterpillars and equipped with 50-foot boom and 13-foot extension. One-yard Williams Clamshell bucket and 1½-cubic-yard Page Class-C drag bucket, boiler retubed and machine equipped with electric light plant. Good working condition, location Detroit District, and ready for prompt delivery. Box 129-LSD.

**50-B STEAM SHOVEL;** shop number about 4300; equipped with 30-foot boom, 19-foot handle, 2-cubic-yard coal loading dipper, and electric light plant. Excellent condition. Location Southern Illinois. Priced to sell. Box 191-LSD.

### For Sale or Rent

**ONE CLASS-14 STEAM DRAGLINE** excavator Number 3327 60-foot boom, 2-cubic-yard bucket, caterpillar mounted, equipped for burning gas or oil. Price very reasonable. Located at Turkey Creek, La. Box 111-LSD.

**50-B DIESEL COMBINATION STANDARD SHOVEL,** including 50-foot dragline boom and attachments; caterpillar mounted; bought in 1924; shop number about 4420; in good condition, subject to inspection. Location near Little Falls, Minn. Priced to sell. Box 164-LSD.

**BUCYRUS 320-B STEAM STRIPPING SHOVEL,** shop number 4205, new in 1925, used less than four years. Located at Toronto, Ohio. Box 74-LSD.

**MONIGHAN DRAGLINE MODEL T,** 2-cubic-yard 60-foot boom located near Wichita, Kansas, where it is now working. About seven years old. Has recently been thoroughly overhauled. Box 180-LSD.

**TYPE 175-B ELECTRIC,** No. 794 equipped with 87' shovel boom, 48' dipper handle, 3½-yd. bucket, and dragline equipment including 125' boom, and 3½-yd. bucket. This machine was recently reconditioned and is in good operating condition. Present location, Connecticut. Box 263-LSD.

## DIRT CHEAP

**Having bought at public auction one Bucyrus 225-B steam shovel, located near Nonnel, Kentucky, I am prepared to sell the same for cash or on terms, dirt cheap, as is and where is. No reasonable offer refused. Inquiries solicited. Box 211-LSD.**

### FOR SALE OR RENT

**50-B DIESEL 60-FOOT BOOM DRAGLINE,** new August 1929, located in Arkansas.
**BUCYRUS-ERIE 20-B DIESEL,** 40-foot dragline boom and extra high lift shovel attachment. ¾-cubic-yard Type "S" Page bucket.
Box 67-LSD.

**175-B STEAM SHOVEL** No. 4090, equipped with 75-foot boom 48-foot dipper handle and 3½-cubic-yard dipper. Machine is in very good condition. Oversize boiler. Box 148-LSD.

**CLASS 14 STEAM DRAGLINE,** mounted on caterpillars, equipped with 60-foot boom. Shop number about 3525. Has seen about two years actual work. Good operating condition. Priced to sell. Box 146-LSD.

**175-B BUCYRUS STEAM SHOVEL,** equipped with 5-foot boom, 48-foot dipper handle and 4-yard dipper. Machine located near Pittsburg, Kansas, and can be inspected at any time. Condition good; price open. Box 118-LSD.

**175-B STEAM SHOVEL,** equipped with 75-foot boom, 48-foot handle, and 4-cubic-yard dipper. Recently rebuilt and in first-class condition, located in Southern Indiana. Priced for quick sale. Box 85-LSD.

**85-C STEAM SHOVEL,** on caterpillar mounting, caterpillars in good condition, price $2,500. Located near Hazelton, Pa. Box 163-LSD.

**70-TON STEAM SHOVEL** mounted on "cats," caterpillars in good condition. Price, $2,000. Located near Hazelton, Pa. Box 162-LSD.

**50-B STEAM SHOVEL,** equipped with 26-foot boom, 17-foot dipper handle, 1¾-cubic-yard dipper, on caterpillars. Also 50-foot boom dragline equipment. Shop number about 4304. New January 1925. Location northern Illinois. Priced to sell. Box 109-LSD.

**68-C BUCYRUS ELECTRICALLY OPERATED SHOVEL,** equipped with 2½-yard manganese front dipper, 3 phase, 60-cycle, 440-volt motors, transformers, cable reel and approximately 1400 feet of cable, all in excellent condition. Reasonable price. Address Box 268-SS.

**BUCYRUS-ERIE 50-B DIESEL DRAGLINE,** Shop number 10,075 equipped with 60-foot boom, 1¾-yard bucket. Machine located near St. Louis, Missouri. Purchased new in September 1928. In excellent condition. Price $12,500. Box 237-LSD.

**CLASS-24 STEAM, OIL-BURNING DRAGLINE.** 100-foot boom. Have also supply of new parts, including 600 new gum rollers. Reasonably priced, subject to buyer's inspection at Chelan, Washington. Box 51-LSD.

**MONIGHAN DRAGLINE MODEL 3-W,** Shop number 459. Equipped with 70-foot boom, 3-yard bucket. Machine purchased new three years ago and in A-1 working condition. Located near St. Louis. Price $20,000.00. Box 235-LSD.

# FOR SALE

## Address all box numbers c/o The Excavating Engineer at South Milwaukee, Wisconsin

### Large Shovels and Draglines

***2 yards and over***
**Continued**

**CLASS-24 BUCYRUS-ERIE STEAM DRAGLINE,** shop number 912; 115-foot boom, 3½-cubic-yard Page bucket. Florida location. Box 75-LSD.

**50-B DIESEL DRAGLINE;** equipped with 50-foot boom, electric light plant, mounted on "cats." Located Vincennes, Indiana. Can be seen at any time. New, August 1927. Asking $12,000. Box 78-LSD.

**CLASS-24 DIESEL-ELECTRIC DRAGLINE,** shop number 911. Machine was originally shipped as steam, but in 1924 was converted to Diesel-Electric. At that time complete new revolving frame and Class 180 new roller frame was installed. Equipped with 115-foot boom and 3½-cubic-yard bucket. 150 H. P. Fairbanks Type "Y" engine, 125 K. W. generator; 100 H. P. hoist motor and 75 H. P. swing motor. Box 124-LSD.

**FOR SALE**

Class 220 Page Dragline; 100 H. P. Charter-Horizontal Twin Cylinder engine; 72-foot boom; 2½-cubic-yard Page bucket. Located Northwestern Indiana. Box 200-LSD.

**MARION MODEL 92 STEAM SHOVEL**—Railroad Type, Serial No. 3775, equipped with 1⅞-inch chain, 5-yard dipper. A-1 condition, new dipper sticks and roof completely overhauled. Any reasonable offer will be entertained. Subject to prior sale and inspection. Location near Kansas City. Box 264-LSD.

**BUCYRUS STANDARD RAILROAD-TYPE SHOVEL No. 70-C,** shop number 1300, 2½-yard dipper, f. o. b. railroad tracks, shipping point Virginia. Address Box 265-LSD.

**BUCYRUS-ERIE SHOP REBUILT 100-B STEAM SHOVEL;** shop number 4890; 29-foot 6-inch boom; 20-foot handle; three-cubic-yard dipper. Can be inspected at So. Milwaukee, Wis. Priced to sell. Box 187-LSD.

**TWO 70-C SHOVELS,** mounted on cats. In good condition. Priced to sell. Address Box 266-LSD.

**WAUKESHA MOTORS**

20—Waukesha Heavy-duty "WS" series four cylinder, 80-100-120 H. P. Like new—guaranteed. $950.00 each.

4—Late type Caterpillar Tractors, 30 and 60. Cheap.

1—P & H ¾ yd. capacity full caterpillar electric Crane, A No. 1 condition. Cheap.

**MERTES MACHINERY COMPANY**
1622 So. First St. Milwaukee, Wis.

**SHOVEL FRONT END for 175-B Bucyrus-Erie.** 65-foot boom, 47-foot dipper sticks and 3½-cubic-yard dipper. Located in Ohio. Box 10-LSD.

**50-B STEAM SHOVEL,** new March 1927. Shop number about 4950. Has 26-foot boom, 17-foot dipper handle and 2-cubic-yard dipper. Priced to sell. Box 240-LSD.

**What Do You Bid On a**

**70-C STEAM SHOVEL** located near Marietta, South Carolina, where it completed a railroad job? Bargain as supplementary shovel or as supply of spare parts.

**88-C STEAM SHOVEL** located in Kansas. Carefully laid up after completing season's work. 3½-yard dipper. Fine condition. Any reasonable offer accepted. Box 52-LSD.

### Miscellaneous Equipment

**COMPLETE CONTRACTORS EQUIPMENT**

Offered for sale by Southern contractor. Priced to sell. For further particulars, Address Box 138-ME.

7—Railroad Type Steam Shovels 2½ to 5 yd.
3—Full Revolving Shovels ¾ yd.
1—Gasoline Clamshell Crane ½ yd.
2—Jordan Spreaders
4—Locomotives, 50 Ton, 20x26, Saddle Tank
32—12-yd. Western Heavy Duty Dump Cars
3—Camp Cars
1—Flat Car
8—1-yd. Dump Wagons
1—Road Wagon
6—Motorized Dump Trucks
2—1-bag Gasoline Concrete Mixers
Pumps, Boilers, Jacks and Other Tools

**STRIPPING PROPERTIES**

**Prospected, Appraised, Examined, Development Planned, Reports**
**RANDOLPH-PERKINS COMPANY**
Geo. B. Massey
38 So. Dearborn St. Chicago, Ill.

**COMPLETE EQUIPMENT** for 2 strip mines, contractors or quarry operations, No. 300 and No. 36 Marion steam shovels, well drills, locomotives, cars, crushers, picking tables, loading booms, cable and button retarders, compressors, motors, transformers, flood and search lights, camp equipment and new repair parts for above. Box 195-ME.

**FOR SALE**

| | |
|---|---|
| **BROWNHOIST Gasoline Crane** | **$2500.00** |
| **LITTLE GIANT Gasoline Crane** | **1750.00** |

**Both with ¾-yard buckets—good condition, now working.**

| | |
|---|---|
| **70-C BUCYRUS SHOVEL on "Cats"** | **$4000.00** |
| **4—LA PLANTE CHOATE Dump Wagons — 8-yard capacity — steel constr.** | **$400.00 Ea.** |
| **2—ELEVATING GRADERS** | **250.00 Ea.** |
| **27 E REX CONCRETE Mixer** | **200.00 Ea.** |

**Address Box 214-ME.**

**ELGIN SWEEPERS,** purchased new in 1928. Priced to sell at $3,000. In good operating condition. Located in Northern New York State. Box 196-ME.

**If You Do Not Find What You Want Listed—Write Us**

The Excavating Engineer
South Milwaukee, Wis.

**½-cubic-yard OMAHA DRAGLINE BUCKET** complete with bail and teeth. Address inquiries to Box 213-ME

**LOCOMOTIVES**

6 **BALDWIN,** 17x24, straight drive standard gauge 45 ton locomotives. 54 inch boilers. Shop numbers from 32,750 to 34,611. Each one has passed State Boiler Inspection yearly. Boilers will stand cold water test of 240 lbs. At present in actual service in Minnesota mine. For full particulars, write Box 152-ME.

**DUMP CARS**

6—8-yard **Western**—36-inch Gauge—2-way side.
8—8-yard **Kerbaugh**—36-inch Gauge—2-way side.

**LOCOMOTIVES**

1—15-ton, 10x14—36-inch Gauge—Vulcan Saddle Tank.
8—21-ton, 11x16—36-inch Gauge — Vulcan Saddle Tank.

**BOILERS**

1—100 h.p. Locomotive Type for 70-C Bucyrus shovel.
1—32 h.p. Locomotive Type Stationary.
Box 181-ME

**KEYSTONE NUMBER 4,** good operating condition, both skimmer scoop and hoe attachments, location Eastern Ohio, price—$1000.00. Box 231-ME.

**For Sale** **For Sale**

**ENTIRE STRIP MINE**
**Equipment and Supplies**

Includes new Jeffery 36x54 single roll crusher, Monarch 50 tractor with Baker bulldozer, Bucyrus 50-B steam shovel Number 4262 with dragline equipment also, 125 ton 75 lb. relaying rails, angle bars, new spikes and ties, electrical equipment, and numerous other items, tools, etc. Priced to sell. Located Central Illinois. Write for complete list and full descriptions. Box 199-ME.

# FOR SALE

**Address all box numbers c/o The Excavating Engineer at South Milwaukee, Wisconsin**

## Miscellaneous Equipment
**Continued**

**HIGHLIFT SHOVEL EQUIPMENT** for Bucyrus-Erie, Type 1030 machine. Has been used less than one year and is well stored at South Carolina point. Any reasonable offer considered. Box 242-ME.

## FOR SALE

14 Western 1½-cubic-yard dump wagons with reinforced bottoms, three up poles and eveners; also six 2 up poles and eveners. Located near Denver, Colorado. Box 227-ME.

## PRICED LOW— FOR QUICK TURNOVER

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1 New 90 HP GE-KTP-Motor 3/25/550 Volts
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1 New 12½"x16" Steam Engine—Link Reverse

**Write Box 151-ME**

## WANTED

**6000-foot 36" belt conveyor with troughing idlers. Must be in first class condition. Address Box 202-ME**

## WANTED

**CRANE ATTACHMENT** to fit a Marion ⅜ cubic-yard steam shovel. Length about 40'. Advise location and price. Box 245-ME.

**ELGIN SWEEPER,** purchased new in 1929. Attractive bargain at $3,500. In good condition. Located in northern part of New York State. Box 197-ME.

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***If you do not find the equipment for your present needs described in our advertising pages, write us. We will do our best to have the desired information mailed to you promptly.***

***The Excavating Engineer***

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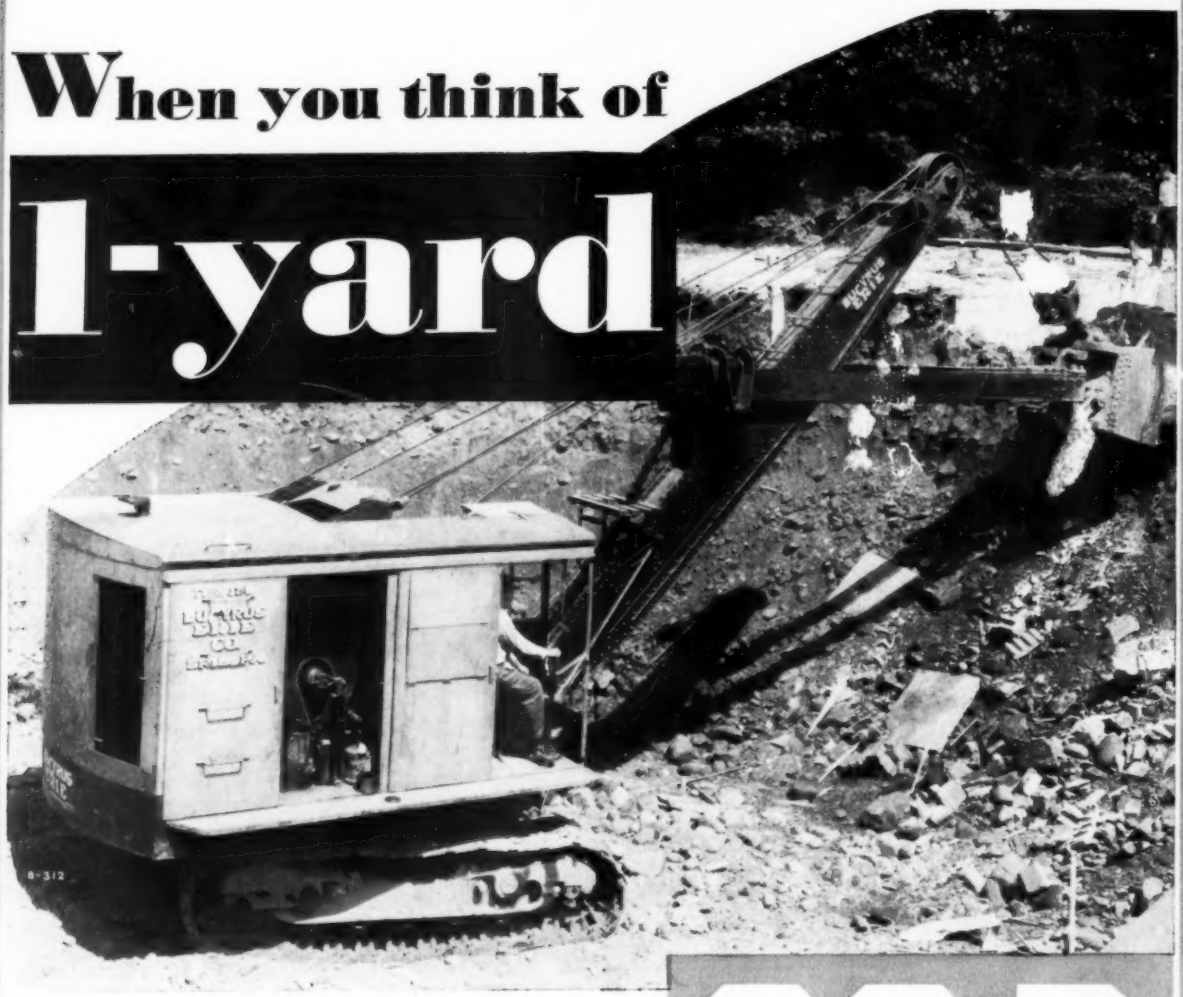

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A-383

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